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BITUMINOUS GRAVEL PAVEMENT ON YONKERS-WHITE PLAINS ROAD.

BITUMINOUS GRAVEL CONCRETE PAVEMENTS.*

Moderate Priced Surface for Suburban Roads—Gravel and Asphalt Heated Separately and Mixed Mechanically, and Spread by Shovels—After Rolling, Covered with Clay and Gravel Screenings.

The construction of highways can be placed under three sub-divisions: First, city pavements upon which there is heavy and congested traffic; second, village pavements upon which the traffic is more or less congested but not as heavy as in a city; third, suburban and country pavements, upon which the traffic is neither as congested or heavy as in cities and villages, but where the automobile can, within the law, travel at far greater speed.

In cities, the highway engineer is compelled to build that form of construction which will withstand heavy traffic conditions and is justified in spending as great an amount of money as is necessary to produce the required results.

In villages, the engineer, although not justified in spending per square yard as much money as in cities, due to different traffic conditions, is justified in the expenditure of more money per square yard than the engineer who is attempting to solve the problem of an economical country highway.

*Presented at the Cleveland Meeting of Section D of the American Association for the Advancement of Science by Spencer J. Stewart, Assoc. M. Am. Soc. C. E., Division Engineer, New York State Department of Highways, White Plains, N. Y.

A portion of the territory over which the writer has jurisdiction could be called the suburbs of New York City.

The highways built eight or ten years ago in this territory were designed to take care of horse drawn vehicles and were water-bound macadam type of construction.

About four years ago, the general design of alignment, grade and wearing surface were changed to conform to the daily increasing automobile traffic and we substituted for the water-bound design the so-called penetration method of construction.

To-day, the problem is not only to take care of the vehicular and motor car traffic, but also of the motor truck, which is fast increasing in use as a local freight carrier. This condition forces upon us the necessity of a comparatively more permanent pavement, namely, brick, asphalt block or some form of mixing method pavement.

Brick, asphalt block or a mixing method pavement covered by a patent is far too costly to pave even the main highways, taking into consideration the amount of money available for this work. As a result of this condition, the writer designed a pavement which he consid-

ered would withstand the traffic conditions and not infringe upon the patents granted to individuals or corporations and not be excessive in cost.

This pavement consists of a mixture of asphalt and gravel in the proportion of one cubic yard of loose gravel to an average of twenty gallons of asphalt, the gravel containing not less than ten per cent. of clay. The gravel is bank run, the largest particle of which was 2-in. in its longest dimension, and containing sufficient fines to partially fill the voids.

The bitumen was a fluxed natural lake asphalt with a penetration between ten and thirteen millimeters when tested for five seconds at seventy-seven degrees Fahrenheit with a No. 2 needle weighing 100 grams.

The gravel was heated in a mechanical revolving drier to a temperature of over 225 degrees Fahrenheit, after which the asphalt, heated to not less than 275 degrees Fahrenheit, was added and the mixture placed in a revolving mixer and thoroughly agitated until all particles were thoroughly and completely coated with the



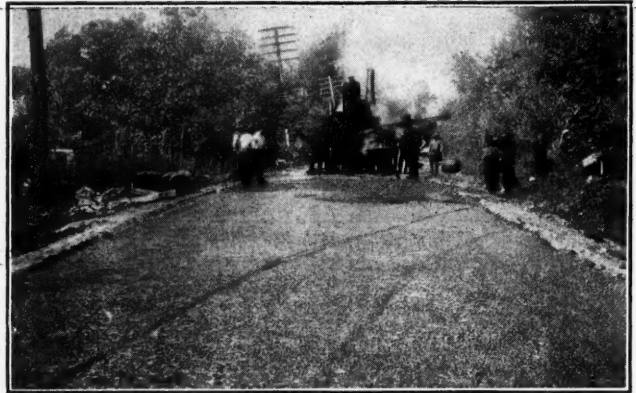
RAKING CEMENTATIOUS GRAVEL AND ASPHALT ON THE EAST HAMPTON-SAG HARBOR ROAD.

bituminous material. The mixture, at not less than 250 degrees Fahrenheit, was then spread upon the prepared bottom course by use of shovels from dumping boards and raked to a uniform surface with hot rakes, after which it was rolled with a self-propelled roller weighing at least 10 tons until thoroughly consolidated.

Upon this surface was placed one-half inch of gravel screenings, containing not less than ten per cent. of clay, which was saturated with water and rolled thoroughly and continuously until a clay mortar had been obtained.



MIXTURE OF CEMENTATIOUS GRAVEL AND ASPHALT PREVIOUS TO ROLLING.



MIXTURE OF CEMENTATIOUS GRAVEL AND ASPHALT AFTER BEING ROLLED WITH 10-TON ROLLER.

This process filled all the surface interstices with a gritty and adhesive substance, which made the road practically "non-skid." The traffic in a short time drives away all surplus screenings, leaving a mosaic surface.

In constructing this pavement it is not considered expedient to have a small percentage of voids, thereby allowing the heat of the sun and the traffic to gradually consolidate the pavement, resulting in a comparatively smooth and even surface and avoiding the short wavy condition of pavements in which the mineral aggregate is fine and the bitumen in larger proportion to the mineral aggregate than in the above described specification. This theory has been substantiated in actual construction.

(To be continued.)

STREET WORK IN KANSAS CITY.

The assistant city engineer of Kansas City, Mo., C. R. Mandigo, sends us the report of the city engineer for the year 1912, which contains a very complete display of the amount of street work done, giving the name of the contractor, amount and cost of each contract; as well as summaries of the year's work. One interesting table, which is a novelty in city reports so far as we have observed, is a list giving the number of jobs awarded during the year to each contractor, and the total amounts of these contracts. There are some cities which would not care to have such figures made public, to say nothing of deliberately presenting them in a public report. This list shows that the street work during the year was performed by 69 different contractors, and that of the 563 separate contracts, the greatest number awarded to any one contractor was 45. The largest amount paid to any contractor was \$196,251 on 37 paving contracts and one sewer contract, this being about 12 per cent of the total amount of all contracts for the year. The next largest payment to a single contractor was \$138,995 paid on 26 paving contracts; and two other contractors were paid over \$100,000 each on paving and sewer work.

The total amount of street work done by the city during the year contained the following as the largest items: 20.8 miles of sidewalks, 31.6 miles of curbing, 0.66 miles of gutter, 12.1 miles of concrete street paving, 6.85 miles of asphalt paving, 3.4 miles of brick paving, 0.55 miles of stone block paving, 0.06 miles of creosoted wood block paving, 0.27 miles of macadam. These were all streets; in addition to which 2.41 miles of alleys were paved with concrete, brick or stone block. The average unit prices for this work were as follows: Sidewalks, 12.9 cents per square foot; curbing, 35.4 cents per lineal foot; gutters, 49 cents per lineal foot; concrete pavement, 6 inches thick, \$1.05 per square yard; asphalt pavement, \$1.92 per square yard; brick pavement, \$1.92 per square yard in streets and \$2.03 in those alleys where a new foun-

dation was required; stone block pavement \$3.10 per square yard; creosoted wood block, \$2.95 per square yard; macadam, \$1.32 per square yard.

The entire cost of the above improvements was assessed directly against the property benefited, no part being paid by the city, except administrative and inspection costs.

The municipal asphalt plant repaired 42,704 lineal feet of street in 32 jobs at an average price of 54 cents per foot of street; resurfaced 2,529 feet of brick street at a total cost of \$7,690; constructed 2,062 lineal feet of asphalt pavement at a cost of \$19,947. For the above work special tax bills were issued against the property benefited. The total amount of work done by the municipal repair plant during the year cost \$52,797.76.

TWO REFUSE INCINERATION PLANTS.

At Duluth, Minn. and Rankin, Pa.—Coal Used for Fuel in One, Rubbish in the Other—Operating Costs.

In February, 1906, the city of Duluth, Minn., accepted a refuse incinerator consisting of two eighty-ton burners furnished by the Decarie Company at a cost of \$30,000. This is operated by the Health Department, and to R. Johnson, the secretary of the department, we are indebted for this information.

No fuel is purchased, but reliance is placed upon the boxes, barrels and other combustible materials collected with the refuse for the burning of the wet garbage, which they do effectively "provided there is a reasonable amount of them. Smaller animals (dogs and cats) are successfully incinerated, but the larger ones (horses and cows) cannot be handled." "It is impossible to incinerate night soil and manure, as they clog the grates." "Repairs to the furnace have to be made annually, particularly the hot water grates, grate bars and fire linings. The cost of repairs will average about \$600 a year.

"We have no means by which to weigh the garbage, refuse, etc., brought to the plant, therefore we have kept a record as to the number of cubic yards of paper, refuse and garbage, which will average 500, 850 and 830 cubic yards, respectively, per month.

"No revenue whatever is derived from the plant or from rags, bottles, iron, etc., brought there.

"No stench is present from the plant aside from the fact that wagons gathering at this point throw off a certain amount, as they are open wagons."

An engineer and three stokers are employed at salaries of \$80 and \$65 a month respectively. The expenditures during the year 1912 were as follows:

Salaries (engineer and stokers).....	\$5,374.55
Telephone	37.50
Fuel for pump in winter	42.50
Repairs to plant	887.50
Expense	26.17

Total\$6,368.22

At 830 cubic yards of garbage per month the total for the year would be 9,960 cubic yards. Assuming 1,450 pounds per cubic yard, this would be 7,221 tons. The cost of incinerating the garbage was, therefore, about 88 cents a ton in 1912; or about 84 cents, if we use the average cost for repairs of \$600 instead of the somewhat greater cost in 1912. This allows nothing for superintendence, interest, depreciation, etc. The paper and rubbish really take the place of the fuel which would otherwise be required; but considering all the refuse, which would average about 8,800 tons a year, the average cost of incinerating was about 72 cts. a ton.

RANKIN, PA.

The borough of Rankin, Pa., installed the same make of incinerator in 1908, this being a ten-ton plant which cost \$11,500. It has been in operation continuously since then. Borough engineer U. G. Duvall writes: "There have been no repairs whatever required during this period with the exception of repainting the stack. We have never had a complaint as to objectionable odors arising from same, and it has given complete satisfaction in every respect."

During 1912 there were consumed 1,560 loads of garbage, the wagons having a capacity of 2 yards. This means perhaps 2,500 yards, or, say, 1,800 tons. The operating expenses, including collection, were as follows:

One furnace man and 2 collectors.....	\$2,160.00
Coal	162.00
Water	6.72
Team expense	487.70
Miscellaneous	47.75

Total\$2,864.17

Of this, the operation of the plant cost about \$890, or about 50 cents a ton, and the collection about \$1.09 a ton.

The operating expense is provided for by a tax levy of one-half mill, which is more than sufficient to cover this expense.

TAXPAYERS' SUITS.

In a decision handed down in January by a Court of Common Pleas in Ohio, the judge makes certain comments which are of more or less general application and which we hope would be agreed to by the majority of courts. Said the judge: "There is much in this case that points strongly to the conclusion that this taxpayer is but a figurehead by which an unsuccessful bidder seeks to enjoin his successful rival, and the court will not lend its aid to any such effort. During the two days' hearing, this plaintiff never appeared nor manifested any interest in the case, while the agent of the company (the unsuccessful rival in question) was the only witness who did appear to manifest any interest in the suit. In this state of the case, it is difficult to escape the conclusion that the real party prosecuting the case is the agent of the company."

The case in question was a more or less peculiar one in some respects. A number of bids on fire hose had been received by the city, and the director of public safety awarded the contract to four companies, one of which was the highest bidder. A suit was brought to restrain the director from awarding a contract for any of the hose to this highest bidder. The judge stated that an examination of the hose and the testimony of experts convinced him that the high-priced hose referred to was worth the difference in cost—in fact he was "satisfied from the evidence that its life is practically twice that of the cheaper grades of hose." So far therefore from the evidence showing that an acceptance of this high bid was an abuse to the discretion reposed in the director of public safety, he was of the opinion that "the purchase of the hose, having regard to the relative merits of the different qualities of hose bid upon, was a wise and prudent exercise of the discretion reposed in him. The director was not required under the law to purchase from the lowest bidder. To do so might be, and if done would be, very bad business policy." He therefore held that the director could not have been charged with any abuse of this discretion had he given the entire contract for the highest priced hose.

Another claim was that the director of public safety

TABLE NO. 1.—DATA CONCERNING STREET ILLUMINATION.

City.	Miles of streets lighted.	Kind of lamp.	No. of lamps in use.	Nominal c. p. or amperes.	Hours burned per year.	Price per lamp per year.	Average distance between.	Height above street, feet.	Method of supporting lamps.	Are wires in conduits?	Conduits under road or side-walks?	Current by water or steam?	Cost of coal per ton.	Prices for commercial light.		Prices for commercial power.		Municipal or private.
														Max.	Min.	Max.	Min.	
California:																		
Alameda	60	W. Tungsten	1	48 c. p.	109,500	...	75	8 1/2	Post	Yes	Both	Steam	...	...	...	...	...	Mun.
Riverside	60	W. Gem	169.6	24 c. p.	3,400	\$4.00	135	20	Brackets	No	No	Water	...	\$9.00	\$4.00	\$6.00	\$2.00	Mun.
		A. C. multiple	54	500 c. p.	3,400	\$9.20	...	30	Poles and mast arm	No	No	Water	...	9.00	4.00	6.00	2.00	Mun.
Indiana:																		
Crawfordsville...		Magnetite	200	4 amp.	3,200	66.00	400	25-30	Span wire & mast arm	No	...	Steam	\$1.35	...	...	...	...	Mun.
Massachusetts:																		
Cambridge		Encl. arc	671	6.8 amp.	3,910	85.00	400	22	Mast arms	No	...	Steam	4.00	10.00	...	5.00	...	Private
		Mazda	585	40 c. p.	3,910	23.20	...	12	...	No	...	Steam	4.00	10.00	...	5.00	...	Private
		Mazda	104	40 c. p.	3,910	26.20	...	12	...	No	...	Steam	4.00	10.00	...	5.00	...	Private
Minnesota:																		
Marshall	10	Arc	34	6.6 amp.	...	0.10a	400	25	Poles and cables	...	...	Steam	4.15	12.00	...	6.00	...	Mun.
		Series inc.	10	6.6 amp.	...	0.10a	...	...	...	...	...	...	...	...	...	...	...	...
Oklahoma:																		
Mangum		Series	60	6.6 amp.	...	84.00	...	20	Span wire	No	No	Steam	3.35	16.00	...	10.00	...	Private
Tennessee:																		
Union City	8	Tungsten series	135	40 c. p.	Moonlight	Free	400	12	Goosenecks	No	No	Steam	2.10	10.00	4.00	10.00	4.00	Mun.
Utah:																		
Mercur	4.5	50 W. Gem	32	5 amp.	8,760	12.00	150	15	Bracket	No	No	Water	...	10.00	...	...	...	Private
Manitoba:																		
Winnipeg	200	Enclosed arc	1,022	7.5 amp.	2,500	0.88a	400	20	Mast arm	No	...	Water	...	3.00	...	0.50	...	Mun.
		Magnetite arc	348	6.6 amp.	4,000	0.88a	300	25	Mast arm	No	...	...	...	...	...	...	...	Mun.
		Series incand.	200	100 w.	3,500	0.88a	300	18	Bracket	No	...	...	...	...	...	...	...	Mun.
		Series incand.	100	95 w.	3,500	0.88a	300	16	Bracket	No	...	...	...	...	...	...	...	Mun.
		Luminous arc	530	2,000 c. p.	b	46.51	300	35	Brackets	No	...	...	...	7.25	...	...	...	Private

a—Per K. W. H. b—1/4 hour after sunset to 1/4 hour before sunrise.

exceeded his authority when he split the contract instead of awarding it all in one contract. This, it was urged, would destroy competition and would be subversive and destructive to the principle involved in competitive bidding. This point, unfortunately, was not properly presented by the plaintiff, and consequently was not decided by the court; but the statements of the decision were open to the inference that had an injunction been asked for setting aside *all* the contracts (which had been given to four different manufacturers), it might possibly have been granted. This, we suppose, would have been on the assumption that one of the bids must, presumably, have been more advantageous to the city than the others; and that consequently the director was acting disadvantageously to the city in purchasing any hose other than that which, in his opinion, offered the best bargain to the city.

MUNICIPAL FIRE INSURANCE.

The city controller of Baltimore, Maryland, if he can obtain the consent of the council, expects to inaugurate municipal fire insurance in that city this year. The present idea is to appropriate \$10,000 annually until \$100,000 is accumulated, after which the city is to discontinue paying insurance premiums and perhaps premiums for bonding its employees, although the latter has not been definitely decided upon. Whenever there is a fire loss, this fund is to be drawn upon for reconstructing the building, and additional annual appropriations made until the fund again amounts to \$100,000. As long as the fund remains at this sum there need be no annual appropriations, and the interest from the fund will be appropriated to the city's general revenue.

In speaking of this recently, deputy controller Childs said that in 11 years the city had paid \$93,453.08 in premiums and collected fire losses amounting to \$10,151.04.

STREET CLEANING IN BALTIMORE.

During the year 1912 the Street Cleaning Department of Baltimore, Md., collected 175,202 cubic yards of garbage, 455,830 cubic yards of ashes and refuse, and 490,602 cubic yards of street dirt, snow, sand, etc. In addition to these, it removed 26,983 cubic yards of dirt from sewers and sewer inlets. In performing this work it employed 197 garbage carts and 145 other carts, 250 sweepers and scrapers with the necessary drivers and helpers and 33 sewer men. The total cost of the collection of garbage and ashes was \$216,720, and of the removal of garbage, \$64,500. The removal of street dirt, sand, etc., cost \$301,424; sweeping and sprinkling streets by machines cost \$60,121; tools and repairs cost \$7,885; salaries, \$26,574; incidental expenses, \$2,676. The total cost of cleaning sewers and inlets was \$27,125, or \$1 a cubic yard removed. Destruction of weeds cost \$1,971. There was received from the sale of refuse, \$4,097. The total payments for the year amounted to \$794,900.

STREET LIGHTING DATA.

We print this week street lighting data to supplement the tables which appeared in our November 7 issue, from replies received since then. We have summarized the data in both issues concerning hours of burning street lamps, such data having been furnished by 148 private plants and 110 municipal ones, with the following results: 1,000 to 2,500 hours—private, 9.5%; municipal, 20.9%. 2,501 hours to 3,500—private, 15.5%; municipal, 23.7%. 3,501 hours to 4,000—private, 47.3%; municipal, 30%. 4,001 hours to 5,500—private, 6.1%; municipal, 5.4%. All night—private, 13.5%; municipal, 7.3%. Moonlight—private, 6.1%; municipal, 10.0%. One of each burns the lights night and day.

LIGHT STANDARDS IN SYCAMORE.

Sycamore, Ill., has installed on its business street, which is about 1,000 feet long, 38 light standards, 28 of which carry three lights and the remaining 10 five lights each. The lights are 60 watt, 110 volt Mazda lamps. The posts are granite concrete, reinforced, made by the Pettyjohn company of Terre Haute. The foundations of the posts are 24 inches square and 24 inches deep. The wires are carried in an underground simplex steel taped lead cable. The system was installed by a local company and cost \$2,750 complete, including poles, lamps, wiring, etc.



SYCAMORE'S ORNAMENTAL LIGHT STANDARDS.

Mayor J. D. Beckler, to whom we are indebted for this information, writes as follows: "This amount was all paid out of the general tax. There was some dissatisfaction by some taxpayers at the time the lights were installed; the reason given by them was that it should be done by special assessment. We tried to put the lights in under special assessment, but met with considerable opposition, owing to the fact that many of the business houses were owned by out of town people, and it was finally decided that whatever was a benefit to the business street of the town would be a benefit to the whole city. Since the lights have been installed and in operation, the taxpayers in general are very well satisfied and would not have the poles removed for many times what the cost amounted to.

"The first step which we took in establishing this system was to order all wooden poles from the business section of the street removed. We met with some opposition from the telephone company, but as soon as the electric company began removing their poles, the telegraph and telephone companies immediately followed and strung their wires in cables and took them through the alleys in the rear of the business houses."

PAVING BY DAY LABOR IN LOUISVILLE

Limited by Law to Repairs and Reconstruction—Detailed Costs of Labor—Advantages and Disadvantages as Compared with Contract Work.

By G. D. CRAIN, JR.

A much-mooted question among American municipalities, somewhat related to that even more widely-discussed and more important one of municipal ownership of public utilities, is that of the relative merits of the contracting system of constructing public improvements and of the city's doing such work itself. The size of the city and the amount of work to be done, as well as many other related matters, necessarily enter into any consideration of the proposition. To be of value, comparisons of the two diametrically opposed systems should be made of like work in cities of the same general class and location, where the cost of labor and of materials is substantially the same; or should be made of the work of the contractor and of the city in the same municipality, and under similar conditions.

Of the latter sort, and furnishing a pretty strong argument on the city side of the debate, is the recent experience of the city of Louisville, Ky., in certain street paving work under the supervision of city engineer David R. Lyman.

It might be of interest to note here that the city of Louisville and such others as may be located in states having laws similar to those of Kentucky in this respect, are considerably limited in the possibilities of general construction work of their own, by reason of the fact that the law provides that the cost of the first improvement of the street is to be paid for by the abutting property owners, and, further, that it shall be let to contractors under competitive bids. The city, therefore, is confined to the reconstruction of such streets as have been once improved.

The work referred to was a comparatively small repaving job, being only 6,006 square yards, which was to be paved with vitrified blocks. The lowest bid procured by the city for this particular work was \$1.62 per square yard, based on the use of Portsmouth brick at \$17.25 a thousand. The engineering department of the city considered this too high for the work, and, on the recommendation of this department, the Board of Public Works rejected all bids, and ordered the work to be done by the city's force. It was accordingly done; and, to summarize results at once, it may be said that the cost of the job as done by the city, figured upon the use of the kind of brick upon which the bids were submitted, actual prices of other material and labor being used, was \$1.465 a square yard, making a difference in favor of the city of \$.155 a square yard, on the paving. This was not net gain, however, inasmuch as the grading was done at a higher cost than the contractor's bid, which was 62

TABLE NO. 2.—DATA CONCERNING "WHITE WAY" LIGHTING.

City.	Kind of lamp.	No. standards used.	Number of standards used.	Distance between standards.	Cost of standard alone.	Cost of installation per front foot.	Cost of operation and maintenance per lamp.		Are wires in conduits?	Are conduits under roadways or sidewalks?
							Current or gas.	Other items.		
California:										
Alameda.....	60 W. Tungsten	4,200	4,200	75	\$11.50	\$0.22	....	....	Yes	Both
Riverside.....	60 W. Mazda	202	...	100	39.00	.87	\$4.92	....	Yes	Yes
	40 W. Mazda	283	192a	...	....	....	3.60	....	....	....
	25 W. Mazda	91	...	...	....	....	2.77	....	....	....
	60 W. Mazda	407	407	110	16.00	.55	4.92	....	Yes	Yes
Massachusetts:										
Cambridge.....	200 c. p. Mazda	72	36	75	35.00	....	....	....	No	....
Minnesota:										
Marshall.....	Tungsten	140	28	80	45.00	....	....	....	Yes	Yes
Canada:										
Winnipeg.....	6.6 amp. Magnetite	420	210	100	125.00	....	....	....	Yes	Roadway
	6.6 amp. Magnetite b	100	100	125	850.00	....	....	....	....	....
Quebec.....	Tungsten	450	450	75c	64.00	1.00	43.50	....	No	Sidewalk

a—Three light standards. b—Boulevard type. c—Staggered.

cents per cubic yard, while the cost of this particular work to the city was 85 cents per cubic yard. A large part of the difference on this item, however, is accounted for by two facts. The first is that the city, according to its uniform policy, pays higher wages for its unskilled labor than the average contractor, no negroes being employed. The city's rate is \$1.75 for a nine-hour day, while contractors, paying lower prices for lower-class labor, get ten hours of work for the same amount. Another important point is that, inasmuch as the city does only occasional construction work and has no teams of its own, it must take what the market affords when it has any work to do. In this particular instance, while it was able to get teams at \$4 a day, which is a dollar less than the higher prices paid by such contractors as hire teams, the lower-priced teams were, as is not infrequently the case, far less efficient, being the culls and leavings which had been rejected by the regular employers of such equipment. Nothing else was available, however, excepting these scrubs, and the city was obliged to use them, with the result that they piled up the cost of grading considerably beyond what it would otherwise have been.

On the job in question all grading was done by plowing and removing the earth in wagons, the material being shoveled direct from the ground. The use of scrapers was not practicable, by reason of the fact that there was no convenient dumping-ground which could have been used for the dirt removed. There was 2,002 cubic yards of grading to be done, and this, at a cost of \$.85 a yard to the city, totaled \$1,704.22. Inasmuch as the contractor's bid for the same work was \$1,241.24 the city's loss by doing the work itself was \$462.98, thus starting off with a handicap.

On the remainder of the work, however, efficient supervision and, possibly, the higher-priced labor justified itself in the smaller cost for the paving proper indicated above—\$1.62 bid by the contractor, while the city did it for \$1.465. The detailed figures on the city's work may be of interest. For the concreting, 3 tons of coal were used in the mixer, costing \$8.94; 874.25 barrels of cement, \$1,079.69; 394 cubic yards of sand, \$327.02; 226 cubic yards of gravel, \$187.58; labor, \$886.12; teams, \$146.67; and 30 yards of broken stone, at \$.65, \$19.50, making a total of \$2,655.52, and a cost per square yard of \$0.442.

The paving proper cost \$5,354.57, itemized as follows: Brick, 234,234, at \$17.25, \$4,040.54; sand, \$281.40; labor, \$816.63; teams, \$216; cost per square yard, \$.891. The grouting cost \$537.38 or \$.089 a square yard; and the expansion joints, for which there was used asphalt filler costing \$220 for 50 barrels, cost \$255.25, or \$.043 a square yard.

The difference between the city's saving on the paving, \$927, and its loss on the grading, was \$464.02 on this job which was about $4\frac{1}{4}$ per cent. of the cost of the work; and the application of such a percentage to the \$250,000 worth of work done in a year by the city would make a very respectable saving.

The actual work of laying the bricks, where a large part of the saving was accomplished, was done, as usual, largely by unskilled labor, led by two expert pavers, and supervised by a competent and energetic foreman. A line of men stretching clear across the street was used, no time being wasted in moving up and down. Each man worked immediately in his own front, and a steady supply of bricks was kept in front of him, so that no time and no movements were lost. It was simply the application of a little scientific management, to get the best results out of the efforts of a lot of inexperienced men.

For use on this job incidentally, and of course for the future use of the city on similar work, there were purchased a Chicago mixer, at \$2,000, and a stone crusher, at \$1,400, a total investment of \$3,400. No charge was made for the use of this equipment on the work, however, in figuring the cost, for the reason that the mixer was used only for about a week, and the crusher not much longer; so that any charge for depreciation or interest on investment during the time the machines were occupied on this particular piece of work would be infinitesimal, figured down to cost per square yard.

The chief difficulty which is experienced by any city in attempting to do its own work, especially if that is not a general policy of the municipality, as well as the chief argument in favor of the contractor, is the difficulty of maintaining an organization without steady employment for it. Naturally efficient labor goes where employment is regular, as well as where wages are high; and if the big contractor can offer work the year around, or the greater part of it, men will stay with him, and he can rely upon having a competent organization at his command for all work he handles, at all times. The city, on the other hand, must lose the men it had trained in handling excavating and paving work, must turn adrift the experienced foreman or engineer it has employed, unless it has sufficient work to keep them busy practically all of the time.

The municipality, however, starts with the decided advantage that it does not have to add a profit after estimating the actual cost of a given piece of work. Whether this item be ten or fifteen per cent., or more, the contractor is handicapped to that extent; for obviously, save in rare instances, he must pay the same prices for material as the city, and other factors are practically equal, save as indicated on the job described above, where there was a slight difference in the cost of labor and teams. In most cases, however, this difference equalizes itself in one way and other; and the absence of that comprehensive profit addition gives the city a big advantage.

Moreover, under the decisions of many state courts the municipality is not liable for injuries received by workers in the course of such work, inasmuch as it is held that public improvements are made by the city in pursuance of its governmental functions; and the cost of liability insurance, which the city escapes, is in these instances another handicap on the contractor. The necessity of giving some sort of guaranty of maintenance, a usual requirement especially in paving work, is an expense to the contractor, no matter what form it takes. In the city referred to, the city's requirement is that the contractor deposit with the municipality for five years, the term of guaranty of the work, State or Federal bonds to a par value equal to ten per cent. of the cost of the work; and the tying up of this amount of capital is almost as bad as its expenditure.

"Other things being equal, the city ought to do most of its paving work, hiring equipment where necessary, at ten per cent. less than a contractor can do it for; and this saving should be more in many instances," said city engineer Lyman. "But, of course, a consistent saving, to make this average, could be accomplished only by the maintenance of a good organization to do the work, which, in turn, is only possible where the city has adopted a policy under which it does all of its own paving work. Those municipalities which are not required by law to let any of their paving by contract are certainly in a favorable position to effect a considerable economy along this line; and even those limited in this respect, as Louisville, can save a little now and then by tackling a job where the contractors are a bit too high."

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FEBRUARY 27, 1913.

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Doing Work by City Forces.

An article on another page of this issue recites the advantages and disadvantages of performing work by city forces as compared with contracting for the same, and states some of the conditions which are advantageous or otherwise to the former. The performing of work under the charge of the city engineer or some similar city official is apparently becoming more common each year, and there is much to be said in favor of it; but before undertaking it the officials should carefully consider whether in their case conditions are favorable for its success. Given a free hand, and assuming equal ability for this kind of work, there is no reason why a city engineer or Department of Public Works should not be able to do work as cheaply as a contractor and save to the city the contractor's profit of ten to twenty per cent. The question in each case is: Is he given a free hand, absolutely independent of political or personal favorites? Can he find available a foreman with sufficient ability to conduct the work properly. And will both foreman and city official be working under a spur to economy equivalent to that which actuates the contractor? In just so far as either one of these three cannot be answered unre-

strictedly in the affirmative, to that extent will the cost be greater than if performed by a first-class contractor.

Where work to be done involves little labor, but a large part of the expense lies in the purchase of materials, the probabilities in favor of success by municipal operation are increased. It is largely for this reason that municipal operation of waterworks proves so successful. The constructing of sewers and street work generally involves the use of considerable labor in most cases, and consequently the chance of success from the cost point of view is lessened. While conditions in this respect are much improved in most cities, it still is too frequently the case that the city officials will not give those in charge of such work a free hand, but will insist upon the employment of political or personal favorites, the purchase of materials through favorite agents, etc. Moreover, local ordinances or unwritten laws frequently require higher wages or shorter hours, or both, for city employees of all kinds; and there seems to be an almost universal idea among laborers that it is unprofessional to do as much work in sixty minutes for a city as when working for a contractor, and the same foreman will usually experience more difficulty in obtaining a day's work from laborers employed by the city than when employed by a contractor.

Another disadvantage under which city officials labor in some cases is the fact that city work is not continuous for any length of time, and that a trained working force, or even a competent foreman, cannot be kept when once obtained, but a new foreman and a new gang must be secured for each job.

But given a city engineer with some ability for contracting, leave him free to employ and discharge laborers and foremen at will, and plan sufficient work of a given kind to keep at least one gang occupied throughout a season, and we believe experience has shown that equally good work can be done at less cost to the city than if let by contract. There is the additional advantage that when the city is performing the work it can be sure of the use of the specified amounts of cement or other materials called for, and in general of just the grade of work which it desires, and can modify its plans during construction wherever experience shows this to be desirable, which modifications can generally be made under contract work only by an agreement with the contractor which generally is greatly to his advantage.

We have said nothing concerning the inducement to be offered to the city officials which would be equivalent to the desire for profit on the part of the contractor. We believe that no city has yet offered to share with its engineer the profits on the work which he might secure, but we see no reason why some such plan might not be adopted. Generally, however, the professional pride of the engineer and the interest which he takes in his work have proved sufficient to spur him to his best endeavors along this line, especially when some method is offered for comparing his results with those obtained by contract. Such comparison is obtained in some cities by having the city engineer bid on all contracts and having him perform the contract when his bid is lower than that of any of the contractors. If his bid is always high it does not speak well for his ability or willingness to perform the work; while if the actual cost of work done by him exceeds his bid, this again reflects upon his judgment and ability. In this case the profit figured by the contractor serves to offset the disadvantages under which the engineer labors, and if the conditions created by the city fathers are such that ten to twenty per cent. of a contract price is not sufficient to offset these disadvantages, it would certainly seem undesirable to attempt to perform the work by day labor.

NEWS OF THE MUNICIPALITIES

Current Subjects of General Interest Under Consideration by City Councils and Department Heads—Streets, Water Works, Lighting and Sanitary Matters—Fire and Police Items—Government and Finance.

ROADS AND PAVEMENTS

Plan Road Building Bee.

Loveland, Colo.—At a mass meeting the farmers and citizens have decided to co-operate in improving the roads of the section around Loveland and also in working for several industries which the local boosters have hopes of securing. A day will be set aside by the mayor, to be designated as "good roads day," when business houses will be closed and every able-bodied man will assist the farmers and county authorities in graveling the roads leading into the city.

Building Test Road.

Olympia, Wash.—After considerable delay work is now under way on the construction of the new demonstration road between Olympia and Tumwater. This is the highway which is to be built in strips varying from 100 to 400 feet in length by the different paving companies for the purpose of demonstrating the practicability, the stability and the good features in general of the paving material each advocates. This highway, the only road of its kind in the West, is being built in Olympia so that it can be under the supervision of the state highway department, although it will be maintained by Thurston county.

Street Paving Postponed.

Terrell, Tex.—Material is on the ground for paving Moore avenue and intersecting streets in the city, but the city commission is postponing the starting of work until the interurban line is assured, so that the right of way in the city will be constructed simultaneously with the other paving, thus saving the extra cost of paving that portion of the street, as well as the expense of tearing up paving for the right of way.

Towns Willing to Contribute for Highway.

Oklahoma City, Okla.—The towns of Bristow and Sapulpa have notified State Highway Commissioner Suggs they wanted to gather a fund of \$10,000 with which to construct a state highway from their cities to Cushing. Kingfisher has agreed to raise \$1,000 to build an improved highway into that town under supervision of the department. Similar statements have been received from Goltry, Adair and Stillwater.

Road Plans Are Nearing Completion.

Fort Worth, Tex.—Plans, profiles and estimates for Tarrant county's new million dollar road system are rapidly being prepared by Road Engineer J. C. Travilla, who has established an office at the court house. Travilla expects to have the necessary papers for the entire system ready for submission to contractors early in March. Actual construction is expected to commence in April. Plans have been completed for the Dallas road, one of the cardinal highways, and for three subcardinals, the Mansfield, Azle and Grapevine roads. The profiles show the grade to be established, with all required fills and cuts. They are based on a maximum grade of 5 per cent., which Travilla expects to prevail throughout the county. The Dallas roadway is to be 18 feet wide to facilitate fast traffic. The road will be used to a great extent by automobiles, and a wide bed is necessary to make passage easy. The Dallas road will be the most perfect, Travilla declares, of the entire system. It will have an asphalt cement surface all the way to the county line, a distance of about 15 miles. A traffic census taken on the road by the engi-

neer shows that from 250 to 1,000 vehicles pass along it daily at present, the variation being due to weather conditions. Still heavier traffic will be experienced in the summer. Travilla's figures show that the road carries practically four times as much traffic as the other county highways. "The plans that we are preparing will be modern and up to date in every respect," Travilla said. "They will contain all the information that progressive road contractors require, and will call for the very highest quality of work. Soon we will begin the survey for the Burleson road. The Crowley survey is finished, and the highway is being platted by my assistants in St. Louis. The severe weather has interfered with our outdoor work to some extent, but the remaining surveys will be rushed as soon as conditions will permit, and I feel safe in saying that plans for the entire system will be ready next month." All the cardinal and subcardinal roads are to be built by contract. Bidders will be required to submit to the county commissioners unquestioned evidence of their ability to carry out the work without delay.

Specifies Concrete Base for Street Paving.

Spokane, Wash.—A warm contest over the decision of the department of public works to exclude from city specifications all street pavings not having a concrete base is scheduled in connection with the paving of Mission avenue from Division street to the Mission avenue bridge, an \$80,000 improvement which soon will be before the city council. Commissioner Coates and City Engineer Macartney have determined not to specify in the plans any pavements without a concrete base, but have not obtained consent of the council in the matter. The council, by a 4-to-1 vote, last year let five or six big contracts for pavements without concrete, over the objections of the works department. "The Mission avenue plans will be sent to the council without any specifications for any paving which has not a concrete base," said Commissioner Coates. Bituminous pavements without concrete bases have been ordered by the council because such pavements are cheaper and were wanted by a majority of property owners on several streets. Commissioner Coates says a concrete base pavement is cheaper in the long run because nothing more than the surface ever has to be replaced, while other pavements have to be entirely relaid when worn out.

Dividing Highway Funds.

Albany, N. Y.—The state highway department in a formal statement says that of the bond issue of \$50,000,000 authorized by the electors last fall to carry on the improvement of highways \$20,000,000 will be used for state highways and \$30,000,000 for the portion of the cost of county highways payable by the state. None of the county quota can be used for any other purpose. Attorney General Carmody said some time ago that the legislature had no power to authorize boards of supervisors to permit the highway commission to reapportion funds. The method of apportionment of the entire amount among counties is: First, on population as fixed by the Federal census of 1910; second, on the mileage of public highways outside of cities and villages as obtained pursuant to Section 69, Chapter 30, Laws of 1909; third, on the total area. Two-fifths of the total amount of funds apportioned to any county must be expended in the county to construct or improve the portion of the state routes mentioned in Section 180 of the highway law within the county, and three-fifths to pay the state's portion of the construction or improvement of county roads within its border, to be determined by the highway commission with the approval of the county supervisors. This method of apportionment,

the highway commission says, created an interesting situation, as some counties had too much state or county mileage, while others had too little within their boundaries according to the apportionment of the funds.

Du Pont's Boulevard Offer.

Dover, Del.—When questioned before a joint meeting of the Delaware legislature as to his proposed boulevard through Delaware, a project held up by litigation before the Federal Supreme Court, T. Coleman du Pont, president of the du Pont Powder Company, said he was willing for the boulevard measure, now pending before the legislature, to provide that he would give any man whose farm the boulevard passed through or over five times the present assessed value of the land five years after the road was completed. Such an agreement, however, he said, must be made now. This statement was made after a keen examination of Mr. du Pont by legislators spurred by their constituents who were interested in the project in the direction of damages or benefits to be derived. Gen. du Pont was emphatic in insisting that the proposed benefits to be derived from the additional strip of 170 feet of the 200 asked for should be turned over to the state treasury. He predicted that in the near future it would prove to be one of the most valuable assets owned by the state.

SEWERAGE AND SANITATION

Long Beach Plans New Sewer System.

Long Beach, Cal.—Dr. Julius Koebig, consulting sanitary engineer, has conferred with the board of health regarding the proposed sewer system the board hopes to see constructed. Dr. Koebig advocates the Herbertz system for the disposition of both sewage and garbage. To construct a first-class sewer system will cost \$350,000, it is estimated. The board of health believes that the city should also construct an incinerator, costing not more than \$30,000, for the destruction of garbage.

Caught by Water in Sewer.

Passaic, N. J.—Imprisoned in a tunnel sixty feet under ground, eight workmen in a section of the Passaic Valley sewer in Ackerman Avenue, Clifton, narrowly escaped death when a compressed air pipe burst and flooded the excavation. Believing the flow would subside and not comprehending their danger, the men continued at work. They finally realized their peril and rapped on a pipe. Joseph Bengé of Brooklyn, the engineer, heard the signal and lowered the elevator. The water then was up to the men's necks and all jumped aboard at once.

Sewer Tapping to Be Done by Contract.

Cincinnati, O.—The administration has evolved a scheme by which all sewer-tapping in the future shall be done by contract. The city is to be divided into two districts, with Vine street as the dividing line. The new method will put a large number of plumbers and licensed sewer tappers out of business. When a property holder wants a sewer tapped he must employ the contractor designated by the city and he must pay what the city has fixed as the price for the work. The fact that he can have the work done more cheaply by a plumber will not cut any figure. There is no way to figure how any one can get the best of the latest scheme of city administration, but it is easily figured how the plumbers will get the worst of it.

State Must Help Build Big Sewers.

Harrisburg, Pa.—Among bills of statewide importance introduced by Senator Beidleman one provides that when the state health department orders a city, borough or municipality to construct or rebuild a sewer system the State shall pay half of the cost. The bill is retroactive and was so framed to assist the municipalities already laboring under burden of debt contracted in accordance

with state health department mandates. An appropriation of \$250,000 is provided for the two fiscal years, commencing June, next, and the money is to be paid at the direction of the governor, attorney general and auditor general. By state law the health department is authorized to compel cities and boroughs to build sewer systems, no matter what the financial condition of the municipalities may be.

WATER SUPPLY

Chase City Is Progressive.

Chase City, Va.—The work of supplying town with water and sewerage which is nearing completion will cost about \$45,000. Excavations for pipes were made with machinery by an Atlanta company. The trench cutter did the work daily that would have required seventy-five men. More than thirty-six miles of improved roads leading from the town in different directions have been finished. Convict and other labor was employed. There is sufficient money on hand, with teams and implements, to continue the work to the Charlotte and Lunenburg County lines. The road board has purchased about 100 acres of land, with buildings, and will keep laborers and mules permanently to extend and keep in order the highways.

Waterworks Profits to City of Manitowoc.

Manitowoc, Wis.—According to city officials in charge of the municipal waterworks plant \$10,000 profits of the plant for the year will be turned over to the general fund of the city this month.

Town Pumping Hinted as Alternative.

Dover, N. J.—With the Board of Water Commissioners still undecided as to which of two bids for reservoir pumping to recommend to the council, an intimation is current that the board may reject both and recommend municipal pumping. Should the commissioners, as suggested, favor installing a steam plant to be owned and operated by the board in the name of the town, its attitude would signify a return to the first proposal made about a year ago. This was that the town establish a plant with the idea of generating electricity at some future date for municipal use.

House at Waterworks.

Brady, Tex.—The city council has contracted for the erection of a residence and repair shop in connection with the municipal water system, their object being to have the superintendent near the plant and to be able to do their own repairing when necessary. Work on the new powerhouse at the filtration plant is progressing rapidly, and the city will soon be prepared to meet any demand for water or light.

Water Contaminated in Mains and Pipes.

Schenectady, N. Y.—How does Schenectady's water supply become contaminated? This is the question at present disturbing the city water bureau officials and in order to satisfactorily answer the question a series of analytical tests are being made. When pumped from the wells at Rotterdam the water is pure, no colon bacilli being found. When drawn from faucets in various parts of the city the number of these bacteria per cubic centimeter is 32 or more. While this bacteria count is not alarmingly high, it is causing not a little concern. The city chemist, Dr. Bradley Henry Kirschberg, is conducting the analytical tests. The first of these was made on a sample of water drawn from the Rotterdam wells. A small amount of water was taken from the bottom of one of the underground collecting galleries. It was analyzed and found to be pure, not one colon bacillus being found. Next a sample was drawn from a tap at the city hall annex and when submitted to the microscope 32 bacteria per cubic centimeter were found. The third test was made from a sample drawn from a well used by a South Centre street family. The bacteria count was 107 per cubic centimeter. This last sample was not city water, but was

MOTOR VEHICLES

Recommends Purchase of Auto Apparatus.

South Orange, N. J.—At the next meeting of the South Orange board of trustees action may be taken on a recommendation made by Trustee W. Arthur Babson, as chairman of the fire committee, that a combination chemical and hose automobile apparatus be purchased for the fire department. According to the fire chairman, the department is in need of such an equipment. At present there is no chemical equipment, save a few small hand extinguishers. Mr. Babson would use the apparatus for the extinguishing of chimney and brush fires, and would also have the board purchase an automatic indicator, to be placed in fire headquarters, to be used in connection with the fire alarm.

Suggests Increasing Speed of Fire Apparatus.

Dallas, Tex.—In a letter to Fire Chief H. F. Magee, fire and police commissioner suggests that he confer with the different officials of the department with a view of ascertaining the advisability of regulating the driving of all auto-apparatus in the fire department in the business districts of the city at a rate of speed not to exceed 20 miles an hour. The suggestion was made after considering the accident which occurred last week at which time three members of the fire department were injured in going to a fire by the bursting of a pneumatic tire.

Would Establish Fire Despatch System.

Sacramento, Calif.—F. G. Parker has applied to the city commission for permission to establish a fire despatch system in Sacramento. The idea is to call for business men or others in whose buildings fire might break out when they are at home, and to hurry them to the scene of the fire. The automobile that would be used by the company would be equipped with apparatus calculated to assist in protecting merchandise and fixtures from damage. Similar systems are established in San Francisco and other cities.

Motor Test Discloses Inadequate Water Supply.

Visalia, Calif.—The city will soon have an opportunity to vote on the question of municipal ownership of the water system. Agitation for a special election to decide on this civic advancement followed the test of new fire apparatus which showed, it is stated by those in charge, that the present supply of water is inadequate. Tests incident to the delivery of a new auto fire engine were made in the outlying districts of the city. Although the water company officials were notified that the tests were to be made water enough for the engine to make a run to its capacity could not, apparently, be furnished.

Auto Fire Engine Test a Success.

Jersey City, N. J.—The second test of the combination fire engine, which was held at Ash and Halladay streets, where it drew from the Morris Canal, and at Ash and Whiton streets, where one of the high pressure hydrants is situated, proved so satisfactory that Fire Chief John Conway, the three members of the fire board, and in fact all the city officials who were present, expressed the hope that the city would shortly avail itself of one of these high-powered horseless engines. Aside from the local city officials, there were present administrative officers from Newark, Bayonne, Hoboken, Montclair, Roselle, Union Hill and other nearby places who had heard of the wonderful work of the engine at its first test some time ago, and were anxious to see it perform. In the first five tests given the engine drew water suction from the canal was employed. Two lines of 1½-inch hose were dropped into the canal, and parallel streams shot from the nozzles at the rate of 665 gallons a minute. On a single line of 1½-inch hose a capacity of ten gallons less a minute was recorded. Three lines of the regulation size hose, which is 2 inches, was then employed, and with a pressure of 40 pounds at the nozzle, 752 gallons of water a minute

was sucked through each line. Four lines of 2-inch hose were then Siamesed into one, and at a pressure of 70 pounds, 994 gallons of water a minute was drawn from the canal. Four lines of 50-foot 1½-inch hose, with a pressure of 50 pounds on each line, threw 1,140 gallons of canal water a minute. The engine was then moved to Whiton street to the high pressure hydrant to which, for the first test, four lines of 50-foot hose were double-Siamesed, one stream shooting through a 1½-inch nozzle and the other through a 1¼-inch nozzle, and 1,371 gallons of water a minute was recorded. The final tests were with single lines, the first one 1,000 feet of 1½-inch hose, with 42 pounds at the nozzle, and a line of similar length 1¼-inch hose, 32 pounds pressure. Through the first, 1,655 gallons of water a minute were thrown and 1,500 gallons through the 1¼-inch hose.

Urges Purchase of Additional Motor Equipment.

Massillon, O.—Safety Director Shepley has been keeping account of the expense of running the automobile fire truck and says its installation has saved the city money. During January alone, \$42.16 was saved by the single piece of apparatus. The three-horse apparatus which the automobile truck displaced, cost the city \$45 a month or \$15 for each horse. During January, the automobile truck consumed 10 gallons of gasoline, two gallons of oil, and a small quantity of alcohol, at a total expense of \$2.84. January was the most economical month since the truck has been installed. In November, the total expense was \$4.32, and the truck has cost, since its installation, just \$32.66. During the same time, the three-horse apparatus would have cost \$180, making the saving for four months, \$147.34. Canton has just installed its eighth piece of automobile fire apparatus and Safety Director Shepley is anxious that more pieces be placed in the local departments. He argues that the aggregate saving each month would soon approximately pay for the machines.

Recommend Better Equipment.

New Albany, Ind.—The addition of an automobile truck to the equipment of the New Albany fire department probably will result from the proposed betterment of the fire protection of the city to prevent an increase in the insurance rates ordered by the Indiana Bureau of Inspection. This practically was decided at a conference of the local insurance men with the Finance Committee of the New Albany City Council. The local insurance men were represented in the conference by a committee of the New Albany Fire Prevention Association, E. M. Sellers, of Indianapolis, chief of the Indiana Bureau of Inspection, was present at the meeting. The Finance Committee agreed to comply with the recommendations of the Inspection Bureau with the exception of one provision requiring the appointment of two additional men for each of the five companies of the New Albany fire department, which it is estimated would cost the city \$8,000 a year. Instead of complying with this recommendation it was suggested that the city authorities might improve the equipment of the department by the addition of the automobile truck and other equipment. The matter was taken under consideration by the Finance Committee, to be definitely decided at a meeting to be held in the near future.

Satisfactory Test of Auto Equipment.

Butte, Mont.—At the recent try-out of the new autos the Butte fire department was declared to be bettered 100 per cent. by the "flying squadron" and the combination hose and chemical auto. The latter machine was tried out first with Bob Burton of the Seagrave Auto company at the wheel. Chief Sanger directed the course and the big car was taken up and down the steepest and most difficult hills in the city. The steepest hills were made either on the "high" or "low" and the distance from the city hall to the top of the School of Mines hill was made in less than four minutes. Members of the fire and water committee boarded the "flying squadron" for a trial spin. The aldermen were as well pleased as the fire chief. In some sections of the business district the machine made better than

40 miles an hour. At the conclusion of the trials made up and down the hills within the city limits, Mr. Burton took the party out on the flat, where he "let loose," to the tune of 55 miles per.

Fire Department Tractor Arrives.

Norfolk, Va.—The tractor which was ordered by the city for the fire department several months ago has arrived in Norfolk and has been taken to fire headquarters on Plume street. A representative of the Christie Company of Hoboken, manufacturers, is expected in the city to put the tractor together. A ninety horsepower engine furnishes the motive power for the tractor and is said to be able to carry a truck along the streets at fifty miles an hour.

Robinson Fire Truck Arrives in Sharon.

Sharon, Pa.—The latest addition to Sharon's fire department, a Robinson auto fire truck, has been received and inspected by Fire Chief Vanderholt. It is of a bright red color and will certainly make a showing when it appears on the thoroughfares of the city. Chief Vanderholt received a message from the Robinson people advising him that a representative of the firm would soon be in Sharon for the purpose of demonstrating the truck and installing the car in the fire house. The Robinson company will, according to the agreement when the truck was ordered, be compelled to prove that the truck is all that has been said about it before the borough will accept it.

GOVERNMENT AND FINANCE

Voters to Pass on Newspaper Question.

Los Angeles, Cal.—The city council has placed itself on record as favoring the submission of the question of whether publication of the Municipal News shall be continued to the voters at the next general or special election. The report of the supply committee, in addition to favoring the submission of the initiative ordinance to the people, called on the management of the city's newspaper to present a set of specifications covering the publication of the paper from April 10 of this year until April 10, 1914. It is the desire of the newspaper commission to print 30,000 copies of the paper weekly. It was the intention of the commission when the paper was established to print 60,000 copies weekly.

Denver to Be Under Commission.

Denver, Colo.—After June 1, Denver will be the largest city in the United States under the commission form of government. This was made certain when practically complete official returns from the special election of Feb. 14 showed a charter amendment for immediate commission government carried by a plurality of 4,980. At the same time another amendment providing for the non-partisan system of elections also carried. The people also passed by a plurality of 20,673 an ordinance providing for lower telephone rates. About 50 per cent. of the normal vote was polled. Under the charter amendment, an election to select the five city commissioners and the auditors provided by law will be held May 21.

Department of Supplies Saves Million.

Philadelphia, Pa.—One million dollars were saved for the city by a business administration of the department of supplies last year. That is the record for 1912 as shown in the annual report of Director Herman Loeb to Mayor Blankenburg. A study of the report in detail reveals that the economies, totalling \$1,000,000, were effected in spite of the increased cost of nearly all the commodities purchased by the department and an increase of 225 in the number of city dependents in municipal institutions. When the books of the department were closed for 1912, there were unpaid bills amounting to only \$61,000, as compared with a deficit of \$703,221.03 left by the Reyburn administration. And, furthermore, instead of empty storerooms and coal bins, the city began the new year with coal bins overflowing and ample supplies in the various storerooms.

These economies were effected during a period in which the department was being reorganized, a labor which required many months. A system of inspection has been established which insures receipt by the city of the full value in quantity and quality of the supplies purchased. Specifications have been standardized so as to insure honest competition, and thus eliminate the favored contractor who grew rich under the old regime. A system of accounting has been installed which affords immediate information concerning each step of every transaction between the city and the contractors of supplies and forms the basis for intelligent comparison in future years.

Nashville May Have Commission Plan.

Nashville, Tenn.—The proposition to place the city government of Nashville in the hands of a commission of five rests with Governor Hooper, the house having passed on final reading such a measure. The bill does away with the city and the board of public works, though legislating none from office prematurely. The mayor is to get \$6,000 and the four other commissioners \$5,000 a year each. Terms of office are four years.

Consolidate City Offices.

Alton, Ill.—The Alton City Council has passed an ordinance combining the office of town clerk with that of city clerk and consolidating the offices of city treasurer and township collector. The duties of special tax collector may also be added to the latter job. The Board of Highway Commissioners has been abolished.

Annual Budget of City Ready.

Boston, Mass.—Mayor Fitzgerald's annual budget of appropriations for the city, county of Suffolk and for the city and county debt requirements, amounting to \$20,927,192.69, is ready to go before the city council. That amount is exclusive of the school department, for that branch of the city's service can spend this year under the law \$5,804,228. The mayor's budget shows a reduction of \$1,336,836.69 in the estimates furnished him by the various departments. The figure was originally \$22,264,028.69. After making the reductions the mayor estimated that the budget leaves the city \$300,000 within the amount available by taxation, but says that any increase in the state and metropolitan assessments over last year's figures will necessitate the raising of the tax rate from \$16.40 to \$16.50 or more on the thousand.

Commission Government Proves a Great Success.

Grand Junction, Colo.—The success of the commission form of government from a strictly business standpoint was demonstrated last year by the city commissioners, according to the annual reports which have just been issued for 1912. During the last year the city expended somewhere in the neighborhood of three-quarters of a million dollars for public improvements, which is considered remarkable for a city of but 8,000. The best showing was made by Water Commissioner B. W. Vedder, who has completed one of the finest mountain systems in the state, and saved the taxpayers \$12,000 in its construction. The total cost was \$422,761, of which \$215,000 went to pay for water rights. The balance was used in actual construction and every cent was accounted for. Usually, municipal improvement estimates fall far below the actual cost, but Commissioner Veder demonstrated that the system could be built under the engineer's estimate, and the money saved was turned back into the city coffers. In this connection the report develops that the water system was even more of a financial success than indicated, and the cost of operation is about \$10,000 under the original estimates. The commissioners have not decided yet as to whether to put this continually growing balance into a sinking fund to be used for paying off the bonds or to cut the water rates. The water commissioner also built during the year two sewer systems, in which he saves more than \$6,000 on the original estimates, which was used in retiring some of the bonds. Street Commissioner Rankin, who had charge of paving contracts aggregating about

\$140,000, also reported a saving of about \$10,000 over the original estimates. Under the Grand Junction charter all of the municipal improvements must be done under direction of the commissioners, and there is a prohibition against letting a contract for any work. The report also shows a decrease in the city's warrant indebtedness, which now amounts to only \$32,000, and the new levy, which is the same as that of last year, will make possible a further decrease. The auditor's report shows that the city of Grand Junction now owns property valued at more than one million dollars. It is probable that the saving on the water system since installing the mountain water, coupled with the money to be obtained from the sale of the old pumping plant, will be used to build an electric pumping plant for fire purposes.

STREET CLEANING AND REFUSE DISPOSAL

Protest Against Dumping Ashes in Streets.

Lockport, N. Y.—Automobile owners and owners of horses are preparing to file a protest against the latest plan of the city to dump ashes gathered by the garbage men on the unimproved streets. The ashes are alleged to be filled with tin cans, nails, pieces of iron and other dangerous articles injurious to auto tires and to horses. The city is following the course because it wants to save money in the haul of ashes under the new municipal collection system and because it has no convenient dumping-ground unless the streets are used. The members of the aldermanic streets committee claim that using ashes this way will save \$2,000 in the highway fund heretofore spent for cinders on the dirt streets.

Endorses Abattoir Bill.

Minneapolis, Minn.—Endorsement of the bill introduced by Senator L'Hearl of Hennepin County, authorizing cities to issue bonds for the establishment of municipal slaughter houses, has been given by committee, and it appears the bill will pass. Only one amendment was made—insertion of a clause requiring a referendum vote in cities of the fourth class before bonds for slaughter houses can be issued. The bill authorizes common councils in other cities to make the issues.

Save Street Sweepings for Fertilizer.

Fort Worth, Tex.—The park department has advised that sweepings from the city streets should be saved and used for fertilizer for flower beds throughout the city. Many cities throughout the country have adopted this plan, and it has proved successful. The trash and refuse matter which is taken from the streets may be collected and dumped upon a place prepared for that purpose. It should then be left to decay for a couple of years before it is used. If this plan is carried out any citizen will be allowed to go to this dumping ground and cart away the fertilizer with which to make his flower beds. It is believed this arrangement would benefit the public parks.

Garbage Must Be Wrapped Up in Paper.

Pasadena, Calif.—Instructions regarding the collection and handling of garbage contained in placards issued by the bureau of efficiency states that all garbage must be drained of water and placed in paper before being put in garbage cans for collection. This requirement of wrapping garbage in paper before putting it in cans is copied from or after many other cities, but in Pasadena such a rule has never become established.

Ash Collection Cost Cut 10 Cents a Load.

St. Louis, Mo.—The cost of municipal ash collections in St. Louis last month was reduced 10 cents a wagon load, as compared to December, 1912, according to a report issued by Street Commissioner James C. Travilla. Twelve hundred more loads were hauled last month than in the previous month. In December, the first full month of the municipal ash disposal, 5,714 loads were hauled, at an

average cost of \$2.21 a load, and 1,025 complaints were registered. Last month 6,928 loads were hauled, 2,961 to free dumps, 655 to the Wiggins Ferry Company barges, 733 to the Burd avenue quarry hole, and 2,579 to United Railways Company cars in which the ashes were hauled to dumps and to fill in sunken places in unpaved streets. The United Railways charge is 80 cents a load, the Wiggins Ferry 25 cents, and the Burd avenue dump, 10 cents. The reduction of cost was brought about through improvements in the dumping system. The total cost of disposal was \$2,300.25, while collections cost \$12,423.72. The combined cost of the operations of the ash hauling division for the month was \$14,723.97.

Additions to Disposal Plant.

Long Branch, N. J.—Improvements costing several thousand dollars are being made to the city garbage plant in Myrtle avenue by the Sea Board Utilization Company. George S. Covert, the secretary and treasurer of the company, had the contract for the work executed a few days ago. He is confident that when the work started is finished the Long Branch city disposal plant will be equal to the best from a sanitary point of equipment and service. A reinforced concrete stack, over 100 feet in height, will be built. The height of the chimney above grade will be 100 feet. The present stack is 45 feet in height. The depth of foundation of the new stack below grade is five feet and six inches. The stack is being built by the General Concrete & Construction Company, of Chicago and New York. The company is erecting a stack for the Consolidated Gas Company, of Long Branch. It is designed especially for carrying away vapor and gases. The company is also erecting large exhaust fans to remove odors and gases. There will be a filtering plant for filtering water that comes from the reduction of garbage at the plant, which will prevent any polluted water from running into land or streams.

MISCELLANEOUS

Curfew Will Ring at 9.

Sidney, O.—The law will hereafter be enforced that any child under 16 years of age not accompanied by parents or guardian will be arrested and taken before the juvenile court if on the streets after 9 o'clock in the evening.

Many Municipal Improvements Completed.

Boston, Mass.—In a review of the past year's municipal improvements Mayor Fitzgerald states that the City Hospital has completed many notable improvements, among them the fireproofing of the administration building and the medical and surgical pavilions, for which an appropriation of \$60,000 was made; \$24,000 has been spent for the maintenance of the X-ray clinic and the orthopedic department; the mortuary building has been enlarged and improved at an expense of \$37,000, and electrical machinery installed in addition to the wiring and fireproofing of the engine roof at a cost of \$50,000. In two of the buildings an automatic sprinkler system has been installed and plans have been made for the further extension of the system to other portions of the hospital. The ambulance service has been improved by the addition of auto ambulances, and it is intended to replace the horse-drawn vehicles as rapidly as possible.

Town to Have Film Censor.

Dixon, Ill.—Dixon will have a board of censors and all vaudeville houses will be closed on Sunday if the ordinance with Mayor Brinton and the commissioners becomes a law. The ordinance will prohibit an entertainment of any kind on Sunday except of a religious character. Moving pictures must first be submitted to the censors for approval and must be of sacred subjects. The commissioners are in favor of it, and the ordinance undoubtedly will become a law. The theatre owners say they will demand a referendum vote on it.

LEGAL NEWS

A Summary and Notes of Recent Decisions— Rulings of Interest to Municipalities

Officers—Removal.

Karb, Mayor, v. State ex rel. Carter, Chief of Police, Columbus, O.—A chief of police who was appointed from the unclassified service January 27, 1910, after the amended section 158 of the Municipal Code of 1902 became effective, was lawfully appointed; and such officer is not subject to summary removal, although said section was amended and repealed during his term of office, and the office was again placed in the classified service.—Supreme Court of Ohio, 100 N. E. R., 344.

Local Improvements, Officers Authorized to Make.

City of Auburn v. Paul.—Priv. & Sp. Laws 1903, as amended by Priv. & Sp. Laws 1905, creating a board of public works for a city and merely conferring on it the powers and duties relating to the construction, maintenance, and care of the streets and sewers of the city conferred or imposed on the council, does not authorize the board to levy assessments for benefits for the construction of a sewer, but such assessments are governed by Rev. St., authorizing municipal officers to levy assessments for benefits for the construction of sewers.—Supreme Judicial Court of Maine, 85 A. R., 571.

Action for Causing Death—Amount of Recovery.

Moyer v. City of Oshkosh.—St. 1898 gives a right of action for personal injuries resulting from defective highways and limits the damages to \$5,000. Sections, as amended by Laws 1907, give a right of action for wrongful death for the benefit of the widow, and authorize a recovery not exceeding \$10,000. Held that, in an action for wrongful death the limit of recovery is \$10,000, though the death resulted from a defective highway.—Supreme Court of Wisconsin, 139 N. W. R., 378.

Establishing of Building Line—Pleading.

Katsch v. City of New Haven.—Where a demurrer to a complaint for equitable relief from the alleged illegal establishment of a building line was sustained on the ground that plaintiff lost her right to object to the assessments by failing to appeal within 30 days as provided by New Haven city charter, a requested amendment "that since her petition had been filed, section 78 of the charter had been amended, making it more difficult than before to obtain from the board of aldermen any change of a legally established line," was properly refused as it did not affect the sufficiency of the complaint or the decision of the court.—Supreme Court of Errors of Connecticut, 85 A. R., 323.

Contracts—Advertisement for Proposals.

O'Malley et al v. Mayor and Council of City of Hoboken et al.—Under the act of March 27, 1902, a contract cannot lawfully be awarded for the removal of garbage in accordance with specifications annexed thereto, when, in fact, the specifications so annexed were not in legal existence at the time the call for bids was advertised, and when the call was for bids "in accordance with specifications on file," and, in fact, none were on file.—Supreme Court of New Jersey, 85 A. R., 449.

Negligence—Joint Action—Personal Defenses.

City of Montgomery v. McCabe.—where an abutting landowner allowed a hitching post to be erected and to remain over 30 years so as to obstruct the street, that such owner's husband, who had long since died, erected it presented no personal defense that would authorize a separate verdict and judgment to be rendered in an action against her and the city by one injured thereby, under Code, 1907, providing that in an action against a city for the negligence of any person such person may be made a party, and in

such case judgment shall not be entered against the city alone, unless judgment is rendered for the other defendant on some personal defense.—Court of Appeals of Alabama, 60 S. R., 456.

Contract for Maintenance of Street—City's Liability.

City of Louisville v. Bott's Adm'x.—That a city contracted with a railroad company which opened a tract as a street, requiring the company to keep the street in repair, would not relieve the city from liability for injuries from a defect in the street making it unsafe to the public.—Court of Appeals of Kentucky, 152 S. W. R., 529.

Municipal Taxation—Valuations.

Merrell et al. v. City of St. Petersburg.—The provisions of the charter granted to the city of St. Petersburg by special statute clearly contemplate that in assessing property for municipal purposes the city may make its own valuations, provided the valuations are just and have a fair relation to a uniform and equal rate of taxation.—Supreme Court of Florida, 60 S. R., 349.

Weights and Measures—Ordinances—Construction.

City of New York v. Fredericks.—New York City Code of Ordinances, providing that meats, poultry, and provisions of every kind, with certain exceptions, sold in the streets or elsewhere in the city, shall be weighed or measured by scales, measures, or balances, or in measures duly tested and stamped by inspectors, or deputy inspectors, of weights and measures, merely requires that, when articles are sold by weight or measure, the balances or measures used shall be such as have been stamped by the municipal authorities, and does not prevent a sale of canned goods by the can, or require that the net contents of the can shall be weighed or measured.—Court of Appeals of New York, 100 N. E. R., 419.

License Tax on Telephone Company—Validity.

Cumberland Telephone & Telegraph Co. v. City of Calhoun, et al.—A municipal ordinance imposing a license tax on a telephone company is not invalid because not stating the purposes for which such tax is levied. Court of Appeals of Kentucky, 151 S. W. R., 659.

Petition for Paving—Residence of Railroad.

Kimmerle et al. v. City of Topeka, et al.—Within the meaning of a statute which makes the improvement of a street depend upon the action of such of the owners of the abutting property as are residents of the city, a railroad corporation is not to be deemed a resident of any other city than that in which its chief offices and principal place of business are located. Supreme Court of Kansas, 128 P. R., 367.

Defective Streets—Liability.

City of Carlisle v. Campbell.—A city may not shift the statutory burden imposed on it to keep its streets reasonably safe for public travel by adopting an ordinance allowing property owners, under the direction of the mayor, to use portions of the streets when erecting improvements on abutting lots; but it is answerable to a traveler injured by the unsafe condition of the street by reason of an obstruction placed thereon by an abutting property owner, where it knowingly suffers the obstruction to remain without taking proper precaution for the safety of the traveling public. Court of Appeals of Kentucky, 131 S. W. R., 673.

Patented Pavement—Proceedings—Injunction.

Custer et al. v. City of Springfield, et al.—A city council acting in good faith in selecting a patented paving material (Hassam) not shown to be fraudulent or inferior to other paving materials in common use and less expensive will not be restrained in a suit by property owners who have made no preliminary remonstrance, since that would be to substitute the judgment of the court for the discretion of the council. Springfield Court of Appeals of Missouri, 151 S. W. R., 759.

NEWS OF THE SOCIETIES

Calendar of Meetings.

February 26-March 8.

CLAY PRODUCTS EXPOSITION. Coliseum, Chicago.

March 3-5.

NATIONAL PAVING BRICK MANUFACTURERS' ASSOCIATION.—Annual Meeting Green Room, Congress Hotel and Annex, Chicago, Ill. W. P. Blair, Secretary, 824 Frotherhood of Locomotive Engineers' Building, Cleveland, O.

March 11-12.

ILLINOIS WATER SUPPLY ASSOCIATION.—Fifth Annual Meeting, Urbana-Champaign. Edward Bartow, Secretary, Urbana-Champaign.

March 19.

BOSTON SOCIETY OF CIVIL ENGINEERS.—Annual Meeting, Boston, Mass. S. E. Tinkham, Secretary, 715 Tremont Temple, Boston, Mass.

April 15-16.

TRI-STATE WATER AND LIGHT ASSOCIATION OF THE CAROLINAS AND GEORGIA.—Annual Convention, Charlotte, N. C. J. W. Neave, Secretary, Salisbury, N. C.

April 18.

UTAH SOCIETY OF ENGINEERS.—Annual Meeting, Salt Lake City, Utah. R. B. Ketchum, Secretary, 702 Newhouse Building, Salt Lake City, Utah.

May 12-14.

SOUTHWESTERN WATER WORKS ASSOCIATION.—Second Annual Convention, Fort Worth, Tex. E. L. Fulkerson, Secretary.

June.

INTERNATIONAL ROADS CONGRESS.—Third Congress, London, England. W. Rees, Jeffreys Secretary, Queen Anne's Chambers, Broadway, Westminster, London, S. W.

August 25-30.

FOURTH INTERNATIONAL CONGRESS ON SCHOOL HYGIENE, Buffalo, N. Y. Dr. Thomas A. Story, Secretary General, College of the City of New York.

Indiana Sanitary and Water Supply Association.

The sixth annual meeting was held at the German House, Indianapolis, February 25-26. The program was as follows:

TUESDAY, FEBRUARY 25.

Ten o'clock. Address of the President, F. C. Jordan, secretary Indianapolis Water Company. Report of Secretary-Treasurer, Dr. W. F. King, Assistant State Health Commissioner. Appointment of Committees. Paper: "The Management of the Municipal Water Department," Henry Drach, Superintendent Anderson Water Works. Discussion: Elkanah Hulley, Superintendent Marion City Water Works; J. W. Peck, Superintendent Water Works, Evansville; Frank A. Kattman, Superintendent Brazil Water Works. Paper—"Water Works Accounting," G. S. Olive, Public Accountant, Indianapolis. Discussion: W. A. Clader, Traveling Auditor, The C. H. Geist Co., Philadelphia; John S. Morris, Auditor Louisville Water Company.

12:30 p. m.: Complimentary Luncheon—German House. Address—"The Ragged Edges of a Water Company," L. C. Boyd, formerly President Indianapolis Water Company. Discussion: Dow R. Gwinn, President Terre Haute Water Works Company; E. L. Loomis, Superintendent Valparaiso Home Water Co.

2 p. m. Address—"The Experience of the State of Illinois with the Shallow Well," Dr. Edward Bartow, Director Illinois Water Survey, University of Illinois. Address—"The Elimination of Surface Wells in Cities and Towns," H. E. Barnard, Chemist, Indiana State Board of Health. Address—"The Influence of Bedrock and Surface Deposits on the Potability of Well Water," Prof. J. W. Beede, Professor of Geology, Indiana University. Discussion: Dr. H. G. Morgan, Indianapolis City Sanitarian; Dr. W. G. Swank, City Health Officer, Crawfordville; Dr. C. S. Woods, with Eli Lilly & Co., Indianapolis, and the three authors.

Five to 6 o'clock, inspection of exhibits.

Eight o'clock. Illustrated Address—"The Typhoid Age in Indiana," Dr. J. N. Hurty, State Health Commissioner of Indiana.

Address—"The Prevention of Preventable Diseases," Dr. L. L. Lumsden, Surgeon U. S. Public Health Service.

WEDNESDAY, FEBRUARY 26.

Ten o'clock. Paper—"Sewage Disposal," Chas. Brossmann, Consulting Engineer, Indianapolis. Discussion: Prof. R. L. Sackett, Professor Sanitary Engineering, Purdue University. Paper—"Description of the Columbus, Indiana Filtration Plant," Philip Burgess, Hydraulic and Chemical Engineer, Columbus, Ohio. Paper—"Recent Advances in Rapid Filter Design," F. B. Leopold, General Manager Pittsburgh Filter Mfg. Co. Discussion: Dr. Edward Bartow, Director Illinois Water Survey; Wm. H. Durbin, Superintendent of Filtration Evansville.

Luncheon, 12:15 p. m. Address—"Some Further Consideration of Our Fire Loss; Who Are the Incendiaries?" Richard Lieber. Discussion: C. E. Coots, Chief of the Fire Force, Indianapolis.

2:00 p. m. Address—"The Functions of a Technical Staff in Public Utility Regulation," Prof. Wm. D. Pence, Chief Engineer Wisconsin Public Utilities Commission, Madison, Wis. Discussion: Prof. W. K. Hatt, Professor Civil Engineering, Purdue University; Theo. Leisen, Superintendent Louisville Water Company. Address—"The Danger of Physical Connections Between Public and Private Water Supply Systems," H. E. Jordan, Superintendent Filtration, Indianapolis Water Company. Discussion: J. F. O'Donnell, Superintendent Distribution, Indianapolis Water Company; Quince Walling, Superintendent Muncie Water Works Company. Address—"Standards of Purity of Public Water Supplies," Jos. W. Ellms, Consulting Engineer, Cincinnati. Discussion: Dr. L. L. Lumsden, H. E. Barnard, H. E. Jordan. Address—"Economic Methods and the Study of Economies," Prof. C. H. Benjamin, Dean School of Engineering, Purdue University. Discussion: S. G. Pollard, Consulting Engineer, Cincinnati; H. A. Dill, Richmond City Water Works.

6:15 o'clock. Banquet. Speakers: Hon. T. R. Marshall, Dr. W. E. Stone, Dr. L. L. Lumsden, Severance Burrage, Dr. J. N. Hurty, C. H. Geist. Reports of Committees. Election of Officers.

Economic Club of New York.

"Efficient City Government" was the topic of discussion at the third dinner of the club's season, at the Astor Hotel, New York City. Mayor Gaynor, New York City, said that in the past the great obstacle to efficient government has been that those put in office had been under the control of somebody on the outside. Mayor Blankenburg, Philadelphia, said that the indifferent citizen, or the man who does not vote when he should is the enemy of efficient government. Mayor Hunt, Cincinnati, said that efficiency is another deity that the twentieth century has added to the nineteenth century goddesses, liberty, equality and fraternity. Ambassador von Bernstoff told of the governments of German cities and the manner in which efficiency is developed.

Mayors' Association of New Jersey.

The association has approved a bill drafted by five of its members which provides that the business methods of every municipality in the state shall be investigated and that there shall be established a State bureau of municipal administration which shall help to unify administrative systems. A commission of three members is proposed who shall have power to compel attendance at hearings, are to have free access to all records and documents relating to State, county and municipal

government, and it is provided that municipal officers shall be required to answer their questions.

Civil Engineers' Society of St. Paul.

On the evening of February 12 the Society entertained the Minnesota Surveyors and Engineers' Society at a banquet at the Ryan Hotel. The menu and program, which was designed by George H. Herrold, office engineer, Department of Public Works, St. Paul, Minn., and the work done by his draftsman, was a black and white print, on two pages, ingeniously decorated. At the top of the first page is a drawing of a park bridge; an engineer and rodman decorate the sides of the program, indicating the beginning of the work; at the bottom is a map of "triangle addition to somewhere," containing an Inertia park and Epicycloid boulevard. The second page has a section of a boulevard at the top and of a suburban street at the bottom.

One hundred and forty-five members and guests were seated at the tables.

PERSONALS

Bennett, Charles J., Hartford, Conn., has been appointed State Highway Commissioner to succeed James H. Macdonald.

Breeden, E. H., Medford, Okla., has been elected as mayor in place of R. Heasty, resigned.

Craig, George W., formerly City Engineer of Omaha, Neb., assumed his new duties as City Engineer of Calgary, Alta., Canada, February 15.

Crichton, A. B., Ferndale, Pa., has been elected Borough Engineer.

Gaffney, James E., New York City, of the Bradley, Gaffney, Murphy Construction Company, has been chosen by Governor Sulzer as chairman of the Advisory Highway Board. Other members announced are: Henry J. McCord, Merrick, L. I.; Gen. Amos A. J. Parker, Albany; John J. Hopper, and Augustus Thomas, New York.

Hillabrandt, Lucien, Johnstown, N. Y., has tendered his resignation as superintendent of the water works.

Patterson, Irving W., for the past two years in charge of bituminous road work in New England and Canada for the Texas Company has been appointed Chief Engineer of the State Board of Public Roads, New Jersey.

Potter, Alexander, consulting engineer, New York City, is preparing a report on the Moorestown, N. Y. water supply to aid the township committee in valuing the water works of the Moorestown Water Company which they may take over.

Robinson, Charles Mulford, Rochester, N. Y., city planning expert, has been recommended by the City Planning Committee of the Municipal Art League, East Orange, N. J., to investigate city planning in East Orange.

Wallum, Charles, Union Hill, N. J., has been appointed Chief of Police.

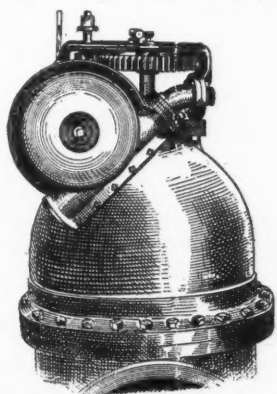
MUNICIPAL APPLIANCES

Hydraulic Operator for Gate Valves.

The Self-Operating Valve Co., Woodward Building, Washington, D. C., have placed on the market a device for opening and closing large valves, which was invented by Messrs. Beale and Moore of Washington, and has been adopted by the Water Works Department of that city for use on all important valves in the system. The valve is operated by hydraulic power, the water being taken from the main to which the valve and the machine is attached.

Ordinarily large valves are opened by several men who were obliged to give from one hundred to five hundred turns to the stem, consuming half an hour or an hour's time in so doing. With the hydraulic operator the work is done with the attention of one man in from three to five minutes. One man with a bicycle can operate thirty valves a day or more, whereas several men are now necessary to operate about eight valves.

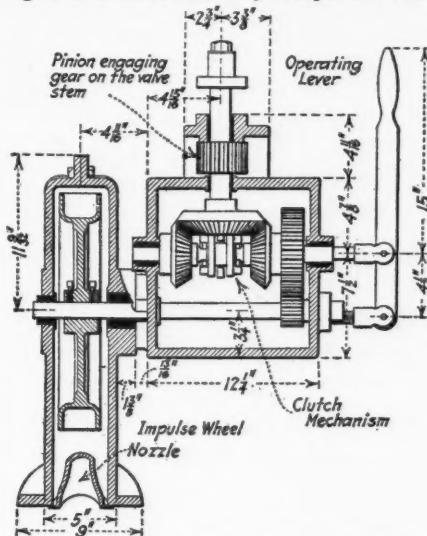
Referring to the accompanying illustration, a general view and diagram, it will be seen that the device is very simple. A water motor is connected to a gear on the valve stem.



MOTOR FITTED TO VALVE.

By means of a lever the attendant stops, starts and reverses the lever. A clutch enables the motor to be run independently of the valve, allowing it to speed up and acquire momentum before taking the load, this being at

times advisable and necessary where the valve is rusty or clogged by sediment. The machine closes the valve tight and automatically stops without



DETAILS OF HYDRAULIC MOTOR.

injury to the machine. However the key nut is projected above the motor in order to insure the possibility of supplemental manual control if desired.

Combined Motor Truck Sprinkling and Flushing Machine.

E. D. Etnyre & Co., Oregon, Ill., make a combined motor truck sprinkling and flushing machine which can also be used for two other purposes which add to its value, particularly for a small city where the amount of equipment is necessarily limited. The machine can be used as a fire engine, since by releasing the governor on the motor a nozzle pressure of 100 pounds or more can be obtained. When charged with suitable chemicals the machine is useful for spraying trees.

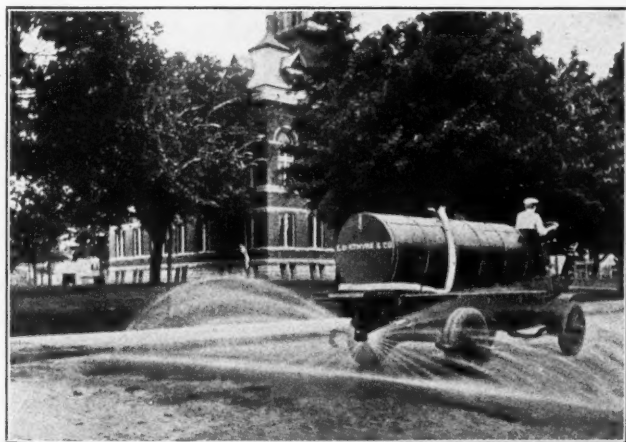
Used as a sprinkler as shown in the first illustration, the valves may be so regulated as to cover a surface varying anywhere from 6 to 80 feet. Each valve is separately controlled by a lever at the side of the driver, so that the quantity of water can be reg-

ulated to correspond to the various speeds at which the truck is operated. The valves may be placed either in the rear or front of the machine.

The other illustration shows the machine with flushing device in operation. The pressure is produced by means of a centrifugal pump, which is connected to the truck motor, a positive clutch being provided so that the pump can be connected to or disconnected from the motor. The pump has a capacity of 1,600 gallons per hour. The motor is 50 horse power and is equipped with governor to hold the speed under 1,000 revolutions per minute. The tank is made of heavy steel and provided with manhole and hose connection for filling. There are two surge plates in the tank to prevent sudden shifting of the load. The machines are made in capacities of 850, 1,100 and 1,400 gallons.

New Type Tapping Connection.

The Municipal Supply Co., Western Union Building, Chicago, Ill., have placed on the general market a tapping connection which has been used in Chicago for five years. The device is given the trade name New Type. It is claimed to have all the advantages of the old split sleeve type as well as a number of new features. The ultimate strength of the chains encircling the main is 126,000 pounds. The total stress on a 16-inch valve, with 100 pounds water pressure is 20,100 pounds. All lead is furnished with the connection. The lead gasket, 2, in the illustration, is poured before the connection is shipped. It is claimed that a connection can be made in from 40 to 60 per cent. of the time required with the use of other connections. Less excavation is required as the heavy malleable cast iron chains require very little clearance. It can be used close to other pipes and services for the same reason. It can be used on mains under water as there is no lead to pour. The heavy chains, 1, eliminate danger from leaks due to breaking of cast iron clamps or ill-fitting flanges as in the old type of split sleeve connections. The construction of the lead gasket, 2, is such that the joint with the main is lim-



MOTOR TRUCK USED AS SPRINKLER.



MOTOR TRUCK USED AS FLUSHING MACHINE.

INDUSTRIAL NEWS

ited to the smallest necessary perimeter, any part of which can be readily and tightly calked.

The New Type connection can be used with any first class make of bell end gate valve. A rough thread is chased in both bell ends of the valve. The valve end of the connection is threaded and screwed into one end of the valve and calked with lead. To connect the tapping machine a rubber gasket is put into the other end of the valve and the machine flange, 3, is screwed tight, against same. The nipple end of the machine flange is threaded and is really a part of the tapping machine. After the tap is completed the valve is closed down and the machine flange with rubber gasket is taken out to be used for subsequent taps. This construction insures proper alignment for the tapping machine. The connections can be used with any tapping machine.

The Municipal Supply Company also manufactures dictagraph recording pitometers, pitometer rods, slip indicators, manometers, calking tools, valves, hydrants and other waterworks supplies.

Sewerage Materials and Devices.

The Pacific Flush Tank Company, The Temple, Chicago, and Singer Building, New York, have taken over the exclusive handling and selling of Jointite. Jointite is a waterproof, flexible compound used for filling joints in pipe sewers. It is poured like lead but requires no calking and moreover has a number of advantages in application as compared with cement. The Pacific Flush Tank Company has also made arrangements with the Blaisdell Machinery Company for the exclusive control of Blaisdell sewage ejector, manufactured under the Woodall patents.

Webb Company Convention.

A three-day convention of more than thirty salesmen of The Webb Company was held at the factory, Allentown, Pa., February 20-22. The program consisted of a series of lectures by A. C. Webb and other members of the staff, explaining the construction of the company's three principal types of fire apparatus, chemical and hose wagons, pumping engines and hook and ladder trucks. The main idea of the convention seemed to be that the general public is fairly well informed of the advantages of motor apparatus over the horse drawn types. That matter is now beyond dispute. Hence it is necessary in order to sell their own apparatus to make known the merits of the details of construction. It was to instruct the salesmen in these details that the convention was held.

A side light is thrown on the growth of the business when a comparison is made of present conditions, and those prevailing five years ago. Five years ago, on Washington's Birthday, the first motor pumping engine that ever came east of the Allegheny mountains was exhibited about 50 miles from Allentown, in Trenton, N. J. A steamer and a Webb pump were started at the same time from points about equally distance and driven to neighboring hydrants near the center of the city. The Webb pump was in action throwing a stream on top of a high building before the horse drawn steamer came in sight. The non-expert public, sometimes more accurate in its judgment than acknowledged experts, foresaw the doom of the horse drawn steamer. Now all experts coincide in the opinion.

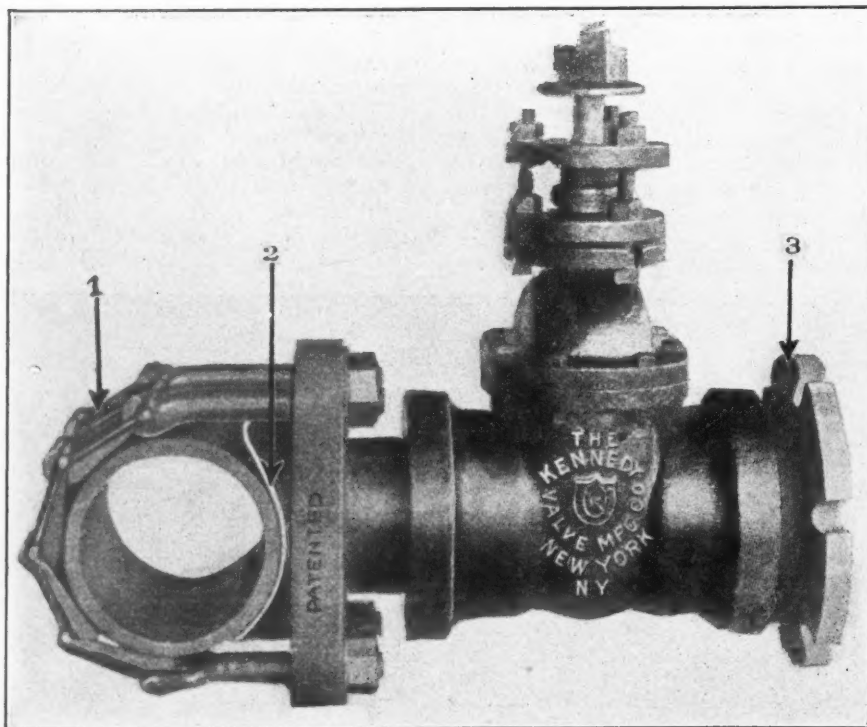
Having this scene in mind the writer looked about the big modern factory with its many pieces of apparatus in all stages of construction and saw the confirmation of the prediction made by the public five years before to a day.

Although there are more combination chemical motor apparatus in service than any other kind, the pump and the ladder are so much more complicated and interesting that they were the subject of most of the lectures, and inspections. Only the briefest sort of review of a few of the features of these machines can be attempted here. The principle developments in the pumping engines have been the reduction in weight, one pound of load removed meaning a saving of more than an equal amount in the chassis, and in improvements in efficiency and capacity of the pump. A newly built, in fact unfinished engine, which had a rated capacity of 750 gallons per minute, was given a pumping test. Speaking of rated capacities generally, a protest was made by Mr. Webb regarding the ordinary systems of gas engine rating. Calculations based on dimensions of cylinders do not include all the important factors. Referring to the pump again, the fact that two cams of the rotary pump are driven by gears outside of the pump case, and that the toes of the cams or vanes are kept in close contact with the casing by means of removable rubber vanes were mentioned as among its chief merits.

Three gasoline electric ladder trucks were on the floor of the factory, one destined for Philadelphia, one for Washington and one for a Canadian city. All are driven by the couple-gear device. In the Webb truck the electric mechanism is specially designed for their machine.

One of the amusing, as well as useful, features of the meeting were the mock sales held after dinner. Certain chosen men represented a committee and others were appointed to sell them a machine. It is reported that the machine was sold.

Cast Iron Pipe. — Chicago.—Large municipal work is slow in developing, but there are many small municipal projects developing favorably. Quotations: 4-inch, \$31; 6 to 12-inch, \$29; 16-inch and up, \$28 Birmingham. Orders for small lots are fair. Shipments are light. General conditions show a slight tendency to betterment. Quotations: 4-inch, \$24.50; 6-inch, \$22.50 San Francisco. The expected tonnage from San Diego has been put off to May or June. Small orders from private concerns continue fairly numerous. Quotations: 4-inch, \$37.50; 6 to 10-inch, \$35.50; larger sizes, \$35 New York. A number of moderate-sized municipal orders have been placed recently. Considerable private buying is in progress. Quotations: 6-inch, car loads, \$25 to \$25.50.



NEW TYPE TAPPING CONNECTION.

THE WEEK'S CONTRACT NEWS

Relating to Municipal and Public Work—Street Improvements—Paving, Road Making, Cleaning and Sprinkling—Sewerage, Water Supply and Public Lighting—Fire Equipment and Supplies—Bridges and Concrete Work—Sanitation, Garbage and Waste Disposal—Police, Parks and Miscellaneous—Proposals and Awards.

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we cannot guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also correction of any errors discovered.

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
STREETS AND ROADS				
N. Y.	Niagara Falls	10 a.m., Mar.	1..Sidewalks, railing, walls, &c.	H. K. Eckert, Supt. Resor.
Va.	Amelia Ct. House	Noon, Mar.	1..Road	P. St. J. Wilson, St. Hwy. Cmr.
Pa.	E. McKeesport	1.30 p.m., Mar.	1..Paving 28,500 yds. curbing, drainage, &c.	E. P. Churchfield, Sec. B. Coun.
Cal.	San Diego	Noon, Mar.	1..Sidewalks and other improvements	John Niven, Timken Bldg.
Ky.	Louisville	2 p.m., Mar.	3..Vit. block on streets and sidewalks	J. B. Wakefield, Chr. B. P. W.
Mich.	Mt. Clemens	4 p.m., Mar.	3..Paving a number of sts.	A. A. Devantier, City Clerk.
Pa.	Jermyn	7 p.m., Mar.	3..Grading county road	Robt. Hall, Boro. Sec.
N. J.	Camden	10 a.m., Mar.	3..Trap rock, 3,200 tons 1½-in.	Wm. Graff, Supt. Roads.
Tex.	Houston	Noon, Mar.	3..Asphalt and wood block	D. C. Smith Jr., City Sec.
Ind.	Jeffersonville	10 a.m., Mar.	3..Macadam road	G. E. Stoner, Co. Aud.
Ind.	Versailles	Noon, Mar.	3..Macadam road	J. F. Lochard, Co. Aud.
Ind.	Franklin	2 p.m., Mar.	3..Stone road, 15,000 ft.	H. L. Knox, Co. Aud.
Ind.	Rockport	3 p.m., Mar.	3..Highway	J. T. Stevenson, Co. Aud.
Ill.	Oak Park	4 p.m., Mch.	3..Concrete pavement	B. C. Brandstadt, Secy Bd. 1.
Pa.	Philadelphia	Noon, Mar.	3..Bituminous macadam, 445,700 sq. yds.; macadam, 69,000; brick gutters, 59,000; curbs and walks	M. L. Cooke, Dir.
Ala.	Opelika	Mar.	3..Cement sidewalks, 40,000 sq. yds.	J. G. Palmer, Mayor.
Mo.	Lexington	8 p.m., Mar.	3..Vitrified brick, 5,474 yds.	Cleveland Wright, City Clerk.
Ind.	Kentland	10 a.m., Mar.	3..Macadam roads in Jefferson Township	S. R. Sizelove, Co. Aud.
Ind.	Tipton	10 a.m., Mar.	3..Gravel road	J. H. Tranbarger, Co. Aud.
N. J.	Westfield	Mar.	3..Macadam, 10,100 yds.	A. W. Vars, Town Engr.
Ohio	Canton	Mar.	3..Brick, 4 miles	Co. Comrs.
Ind.	Hartford City	Mar.	3..Constrn. two roads	County Comrs.
Ind.	Mt. Vernon	2 p.m., Mar.	3..Gravel road	J. S. Aldredge, Comr.
Ind.	Brookville	Noon, Mar.	3..Highway 16,848 lin. ft.	C. G. Reifel, Co. Aud.
Ind.	Danville	10 a.m., Mar.	3..Road, 1,500 lin. ft.	H. E. Sanders, Comr.
Ind.	Vincennes	2 p.m., Mar.	4..Two gravel roads	J. T. Scott, Co. Aud.
Ill.	Berwyn	8 p.m., Mar.	4..Concrete sidewalk, cost \$4,368	W. V. Aikman, Sec. B. L. I.
N. Y.	Richmond	Noon, Mar.	4..Tar binder, 56,000 gal.; asphalt binder, 110,000 gal.	Geo. Cromwell, Boro. Pres.
Md.	Oakland	1.30 p.m., Mar.	4..2 miles State highway	W. L. Marcy, Sec. St. Rd. Comrs.
Miss.	Nathan	2 p.m., Mar.	4..Gravel road in District No. 5, 13 miles	J. A. Tyson, Chancery Clerk.
Ind.	Kokomo	10 a.m., Mar.	4..Gravel roads	R. B. Swift, Co. Aud.
Ind.	Rushville	2 p.m., Mar.	4..Brick macadam and bituminous macadam	A. R. Holden, Co. Aud.
Ind.	Martinsville	Noon, Mar.	4..Gravel road	J. S. Whittaker, Co. Aud.
Ind.	Logansport	10 a.m., Mar.	4..Macadam road	J. W. Wallace, Co. Aud.
Ind.	Bloomfield	2 p.m., Mar.	4..Macadamized road	C. H. Jennings, Co. Aud.
Ind.	Marion	2 p.m., Mar.	4..Stone road	E. H. Kimball, Co. Aud.
Ind.	Winnemac	Noon, Mar.	4..Gravel road	W. E. Munchenburg, Co. Aud.
Ind.	Bedford	1 p.m., Mar.	4..Two gravel roads	E. W. Edwards, Co. Aud.
Ind.	Paoli	2 p.m., Mar.	4..Gravel road	E. A. Palmer, Co. Aud.
Minn.	Fairbault	Mar.	4..Brick, wood or other pavement, 10,500 yds.	F. W. McKellert.
Miss.	Macon	2 p.m., Mar.	5..Gravel roads, 13 miles	T. W. Madison, Comr.
N. Y.	Senenectady	2.30 p.m., Mar.	5..Asphalt paving, 100,000 sq. yds.	F. E. Johnson, Sec. Bd. Contr.
Ind.	Corydon	2 p.m., Mar.	6..Gravel roads	J. L. O'Bannon, Co. Aud.
N. Y.	New York	2 p.m., Mar.	6..Sheet asphalt	Geo. McAneny, Boro. Pres.
N. J.	Pompton Lakes	Mar.	6..Concrete sidewalks, 35,000 sq. ft., 10,000 sq. ft. blue stone flag	H. G. Hershfield, Mayor.
Ill.	Lawrenceville	2 p.m., Mar.	8..Macadamizing State road	D. Hipsher, Comr.
Tex.	Bay City	Mar.	10..Mud shell, 20,000 cu. yds.	W. C. Lloyd, Co. Clerk.
Sask.	Regina	Mar.	10..Paving in car tracks 40,000 yds.	R. Martin, Chrmn. Comrs.
Tex.	Palacios	Mar.	10..Shell road, 30 miles	J. H. Elvage, Engr.
Tenn.	Bluff City	1 p.m., Mar.	10..Macadam, 50 miles	W. D. Lyon, Chrmn. Com.
Ky.	Franklin	Noon, Mar.	10..Macadamizing Lincoln-Jackson Way	I. H. Goodnight, Chrmn. Com.
Ohio	Sidney	Mar.	11..Paving, all materials, 66,000 yds.	O. D. Warner, Dir. P. S.
Ind.	Clinton	8 p.m., Mar.	11..Concrete paving, several sts.	E. M. Howes, Mayor
Ore.	Dalles City	Mar.	11..Bit. asphaltic concrete, Dollarway or Hassam, 30,000 yds.	C. L. White, C. Engr.
Ohio	Cleveland	11 a.m., Mar.	12..Imp. road	J. F. Goldenbogen Clerk.
Pa.	Oil City	Mar.	15..Wood block, 5,200 yds., cost \$12,000	G. F. Roess, City Engr.
Wis.	Watertown	2 p.m., Mar.	15..Reinforced concrete pavement, 3 sts.	A. Kraefft, Ch. Bd. Pub. Wks.
Wyo.	Sheridan	10 a.m., Mar.	17..Wood, bitulithic, asphalt, &c., 21,800 yds.	J. J. Witherow, City Clerk.
Minn.	Minneapolis	11 a.m., Mar.	17..Grading	A. P. Erickson, Co. Aud.
Ohio	Minster	Mar.	19..Paving, 40,000 yds.	L. W. Schneider, Vil. Clerk.
Ind.	Washington	Mar.	19..Dollarway, 12,000 yds.	Iowa Engr'g. Co., Clinton.
Ohio	Bellaire	Noon, Mar.	19..Bituminous macadam, glutrin macadam, &c.	W. J. Campbells, Twp. Clerk.
Ohio	Cleveland	11 a.m., Mar.	19..Imp. road	J. F. Goldenbogen, Clerk.
Ohio	Archbold	Mar.	22..Paving, 9,000 yds.	J. H. Fagley, Vil. Clerk.
Pa.	Chambersburg	8 p.m., Mar.	24..Paving, 15,700 yds.	C. H. Paterson, Boro. Clk.
Ind.	Mt. Vernon	Mar.	25..Brick, wood block, asphalt or concrete	Iowa Engr'g. Co., Clinton.
Pa.	Monongahela	Apr.	1..Brick, 8,000 sq. yds. Cost, \$12,000	J. A. Morrow, C. Eng.
Fla.	Bartow	Noon, Apr.	7..Macadam	J. A. Johnson, Clerk Comrs.
Ind.	Logansport	Apr.	9..Macadam roads	J. E. Wallace, Co. Aud.
SEWERAGE				
Ont.	Simcoe	Mch.	1..Sewer system; cost, \$70,000	W. C. McCall, C. Clk.
Ohio	Delaware	Mch.	1..Clay pipe, 6,000 ft. 8 in.	City Clk.
Wis.	Ripon	Mar.	1..Sewers	City Clerk.
Mich.	Ann Arbor	Mar.	1..One mile 8-in., two miles 12 to 20-in. vit. pipe	Manley Osgood, City Engr.
Ind.	Toledo	Mar.	1..Disposal plant, and 1,000-ft. outlet sewer	City Clerk; Sam Steigerwalt, Nevada, Ia., Engr.
Wis.	Prairie du Chien	7 p.m., Mar.	1..Vit. pipe, 27,520 ft., 6 to 12-in.	City Clerk; W. G. Kirchoffer, Engr., Madison.
Ill.	Champaign	2 p.m., Mar.	3..Storm water sewer	W. Coughlin, Pres. B. L. I.
Mo.	Sedalia	Mar.	3..Clay pipe, 1,600 ft. 18-in.	F. T. Leaming, City Engr.
Ga.	Atlanta	3 p.m., Mar.	3..Clay pipe, cement asphalt, granite curbing, &c.	R. M. Clayton, Chief Engr.
Mo.	Hannibal	Noon, Mar.	3..District sewers, cost \$85,000	B. F. Smiley, City Engr.
Ky.	Louisville	Mar.	3..Sewers, cost \$60,000	Bd. of Pub. Works.

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
Wis., Watertown	.....2 p.m., Mar.	4..	Clay pipe, 2,000 ft. 10- to 20-in.	Arnold Kraeft, C. Engr.
Fla., Fort Mead	.....10 a.m., Mar.	4..	Clay pipe, 14,500 ft. 8 to 12-in., &c.	W. E. Arthur, Sec. & Trustee.
Pa., Carlisle	.....Mar.	6..	Disposal plant and sewerage system	T. Chalkley Hatton, Wilming- ton, Del.
Ia., Toledo	.....7 p.m., Mar.	10..	Disposal plant and outlet sewer	J. M. Lichty, C. Clerk.
Ind., South Bend	.....Mar.	11..	Bowman Creek sewer	Board of Pub. Works.
N. J., Newark	.....Mar.	11..	Main sewer two parts, 3,000 & 2,600 ft., respectively	Pascale Sewerage Comm.
Ore., Dalles City	.....Noon, Mar.	11..	Laterals, 15,000 ft. 6 to 12-in.	C. L. White, C. Engr.
Tex., Pecos	.....Mar.	15..	Sewer system, cost \$35,000	City Clerk.
Ohio, Conneaut	.....Noon, Mar.	17..	Sanitary sewer, 2,000 ft. 8-in. septic tank	A. W. Pelton, Dir. Pub. Serv.
Wyo., Sheridan	.....10 a.m., Mar.	17..	Storm sewers	J. J. Witherow, City Clerk.
D. C., Washington	.....2 p.m., Mar.	17..	Sewers	C. H. Rudolph.
Kan., Burlingame	.....Mar.	18..	Clay pipe sewers	J. J. Griffin, City Clerk.
Ont., Bowmanville	.....8 p.m., Mar.	19..	Sewerage system	John Lyle, Town Clerk.

WATER SUPPLY

N. J., Asbury Park	.....Mar.	1..	Addition to pumping station and main, \$275,000.	R. L. Savage, C. Engr.
Ill., Flora	.....2 p.m., Mar.	3..	Mains	W. A. Karr, Pres. B. L. I.
Ohio, West Park	.....Noon, Mar.	3..	Water mains	Fred Feuchter, Bd. Trstes.
Minn., Gibbon	.....7 p.m., Mar.	3..	Water main	C. W. Carlson, Vil. Clk.
Miss., Tutwiler	.....Mar.	4..	Water works	R. C. Huston & Co., Engrs., Memphis, Tenn.
Fla., Fort Meade	.....10 a.m., Mar.	4..	Steel water pipe, galvanized pipe, valves, hydrants, tank pumps, &c.	W. E. Arthur, Sec. Trustees.
B. C., Vancouver	.....Mar.	5..	Steel pipe, 157,000 ft. of 6 and 8-in.	James Stewart, Purch. Agt.
Tenn., Arlington	.....8 p.m., Mar.	7..	C-i pipe, 3,300 ft. 6-in., tank tower pump, elec. equip.	W. A. Taylor, Mayor.
Ia., Muscatine	.....9 a.m., Mar.	10..	Reservoir	T. R. Fitzgerald, Sec. Trustee.
Tenn., Kenton	.....Mar.	11..	Water works and electric lighting plant	R. C. Houston & Co., Mem- phis, Engrs.
Ia., Burlington	.....Noon, Mar.	15..	Clear water basin	Citizens' Water Co.
Ont., Bowmanville	.....8 p.m., Mar.	19..	3 reservoirs, water mains, hydrants, valves, &c.	John Lyle, Town Clerk.
Hayti, Port au Prince	.....Apr.	3..	Water works, cost \$400,000	Dept. Travaux Publiques.
N. J., Jersey City	.....Apr.	15..	Steel concrete conduit, cost \$500,000.	C. A. Van Kuren, C. Engr.

LIGHTING AND POWER

Ohio, Cleveland	.....Noon, Mar.	4..	Lead encased rubber-covered cable	W. J. Springborn, Dir. P. Serv.
N. B., Dalhousie	.....Mar.	5..	Steam pump, turbine pump, boilers, engines, elec. equip.	A. J. LeBlanc, Town Clerk.
Sask., Moose Jaw	.....Noon, Mar.	5..	Copper and iron wire, cedar poles, line supplies	City Comrs.
Cal., Los Angeles	.....2 p.m., Mar.	7..	Lead covered cable, terminals, &c.	Bd. Pub. Works.
Sask., Regina	.....Noon, Mar.	15..	Power house equipment; 500 h.-p. water tube boilers	E. W. Bull, Supt. Lt. & Power.
Sask., Swift Current	.....Noon, Mar.	17..	Sinking gas well	G. D. Mackie, Town Engr.
Fla., Gainesville	.....4 p.m., Mar.	17..	Electric light system and water works	H. E. Taylor, Ch. Bd. P. Wks.
Sask., Regina	.....Mar.	18..	Water tube boilers, 6 500 h.-p., stokers, super-heaters, &c.	E. W. Bull, Supt.
La., New Orleans	.....3 p.m., Apr.	18..	One 150 h.-p. motor, contract 54-D.	F. S. Shields, Sec. S. & Wtr. Bd.
Chile, Santiago	.....Sept.	10..	Illuminating plant for port works	Comision de Puertos.

FIRE EQUIPMENT

Ariz., Nogales	.....Mar.	1..	Fire house, cost \$20,000	City Clerk.
N. D., Grand Forks	.....4 p.m., Mar.	3..	Fire hose, 500 ft.	C. J. Evanson, City Aud.
Kan., Hlawatha	.....8 p.m., Mar.	3..	Motor combination chemical and hose wagon	J. W. Leibengood, City Clerk.
Pa., Jeanette	.....8 p.m., Mar.	3..	Fire hose, 1,000 ft.	G. S. Kirke, Sec.
Ohio, Cleve. Heights	.....Noon, Mar.	4..	Motor fire truck	H. H. Canfield, Clerk.
Wash., Seattle	.....10 a.m., Mar.	7..	Two comb. city service motor hook and ladder and chemical trucks, one 75-ft. motor aerial truck	C. B. Bagley, Sec. Bd. P. Wks.
Col., Denver	.....Mar.	8..	Fire hose, 10,000 ft.	Comrs. of Supplies.
Alta., Edmonton	.....Noon, Mar.	10..	Three motor comb. wagons, two motor engine & hose, one motor hook & ladder truck, one 90 HP. tractor, one horse drawn hose wagon, 5,000 ft. 2½ in. hose play pipes, connections, etc.	City Comrs.
D. C., Washington	.....3 p.m., Mar.	17..	Fire alarm system for warehouse	Supervising Architect.

BRIDGES

Mo., Fulton	.....Mar.	1..	Concrete bridge, cost \$3,500	P. D. Thurmond, City Engr.
Ont., Columbus	.....Mar.	1..	4 reinforced concrete bridges	Wm. Purves, Town Clerk.
N. J., Perth Amboy	.....Mar.	1..	Bridge, 31 ft. span	Freeholders.
Ont., Toronto	.....Noon, Mar.	3..	Concrete abutments for bridge	Frank Barber, Town Engr.
Ind., Rockport	.....2 p.m., Mar.	3..	60 bridges	J. T. Stevenson, Co. Aud.
Ind., Salem	.....1.30 p.m., Mar.	3..	4 concrete bridges	F. S. Munkelt, Co. Aud.
Tex., Houston	.....Mar.	3..	Reinforced concrete bridge	D. C. Smith, Jr., Sec.
W. Va., Marlinton	.....Mar.	4..	Concrete bridge	C. J. McCarty, Co. Clerk.
S. D., Mitchell	.....1 p.m., Mar.	4..	Bridges during 1913	R. A. Zangle, Co. Aud.
S. D., Faulkton	.....2 p.m., Mar.	4..	Bridges during 1913	W. R. Hall, Co. Aud.
Wis., Watertown	.....2 p.m., Mar.	4..	Two concrete bridges at Emmet	H. Ziemer, Chrmn.
Ia., Sioux City	.....Noon, Mar.	5..	Bridges and culverts	E. E. Hosmer, Co. Aud.
Ind., Albion	.....Mar.	5..	New bridges, 19; repairs	J. C. Kimmell, Co. Aud.
Tex., San Angelo	.....10 a.m., Mar.	11..	Concrete bridge	County Clerk.
Va., Richmond	.....Noon, Apr.	15..	Concrete bridge and viaduct approaches	C. E. Bolling, City Engr.
N. Y., Minetto	.....About Apr.	15..	Reinforced concrete bridge	Concrete Steel Engr. Co. N. Y.
N. Y., Albany	.....Noon, Mar.	18..	Arch Aqueduct at Medina	D. W. Peck, Supt. Pub. Wks.

MISCELLANEOUS

Alta., Calgary	.....Mar.	1..	Asphalt paving plant, cost \$60,000	J. M. Miller, City Clerk.
Ont., St. Frances	.....Mar.	1..	Telephone system	J. W. Walker, Clk.
Ohio, Hamilton	.....10 a.m., Mar.	1..	Concrete retaining wall	W. W. Crawford, Co. Aud.
Ill., Eppingham	.....1 p.m., Mar.	3..	Jail and Sheriff's residence	C. C. Loy, Co. Clerk.
Ont., Toronto	.....Noon, Mar.	4..	Concrete mixers, grading machines, tar kettles, road rollers, pumps, boilers, excavating machines, &c.	H. C. Hocken, Ch. Bd. Control.
Minn., Minneapolis	.....3 p.m., Mar.	4..	Three motor cycles	K. E. Alexander, Purch. Agt.
N. Y., Matteawan	.....8 p.m., Mar.	4..	Street name signs, 450; house numbers	Village Trustees.
N. J., Woodlynne	.....8 p.m., Mar.	5..	Collecting garbage and ashes	R. J. Shelhamer, Chrmn. Com.
Ga., Augusta	.....Noon, Mar.	6..	Reinforced concrete bulkhead, 3,750 cu. yds.	N. Wingfield, Chief Engr.
Alta., Calgary	.....5 p.m., Mar.	7..	1 vacuum street cleaning machine	J. M. Miller, City Clerk.
Pa., Wilkes-Barre	.....Noon, Mar.	7..	Cleaning 35 miles paved sts.	F. H. Gates, City Clerk.
Ore., Portland	.....Mar.	10..	Portland cement, 100,000 bbls.	Major J. J. Morrow.
Ohio, Sandusky	.....Noon, Mar.	11..	Motor patrol wagon, cost \$2,500	J. C. Hauser, Dir. Pub. Safety.
S. C., St. Matthews	.....Noon, Mar.	16..	Court house and jail	J. S. Wannmaker, Chr. Com.
Pa., Chester	.....8 p.m., Mar.	17..	Concrete retaining walls, &c.	W. Provost, Jr., Chr. Com.
D. C., Washington	.....Mar.	26..	Plans for closed dump carts, 6 cu. meters capacity	No. 10409, Bureau of Mfrs.

STREETS AND ROADS

Los Angeles, Cal.—On recommendation of Streets Committee, City Engineer was instructed by Council to proceed with plans for paving Moneta ave.

Los Angeles, Cal.—Petitions have been received for improvement of various streets.

Pasadena, Cal.—Resolutions ordering paving of South Raymond, Walnut, Kirkwood, Bradford and Champlain have been introduced.

Pasadena, Cal.—Resolution of intention for paving of East Orange Grove ave., from Los Robles to Lake, has been adopted.

Riverside, Cal.—Plans for a first-class highway connecting number of important towns in counties of Riverside,

Orange and Los Angeles are under consideration.

San Francisco, Cal.—Improvement of Ocean ave. is being planned.

Denver, Col.—Bill has been passed for opening of Broadway from Welton to Blake st.

Topeka, Kan.—Plans and specifications for 74 blocks of paving, including streets and alleys, to be laid in 1913, have been presented and approved in City Commission. Bids will be advertised for.

Middlesboro, Ky.—Good Roads bonds issue of \$500,000 will be voted on in Bell County on March 4.

New Albany, Ky.—Board of County Commissioners has ordered improvement of Charlestown road from New Albany city limits to Floyd and Clark County line, together with branch from Charlestown road to another improved highway at line of Floyd and Clark Counties. The two roads are each little less than three miles long.

Baltimore, Md.—York road, from city limits of Towson, is to be improved by State Roads Commission, and bids for work are now being asked. Money to pay for work will come out of loan authorized by last Legislature. Work to be done this year will be divided into two sections, one of which will be constructed of bituminous macadam on concrete base with Belgian blocks between car tracks, while northern section will be of macadam.

Boston, Mass.—Mayor Fitzgerald has approved order of Street Commissioners for widening Pleasant st. from Washington st. to Park sq., 60 ft. Board estimates cost of improvement at \$698,565.

Camden, N. J.—Ordinances have been passed directing paving of various streets with vitrified brick on 4-in. concrete foundation. James E. Hewitt, President of City Council.

Jersey City, N. J.—Improvement of Thorne and Blecker sts. and Fairview ave. has been authorized. E. B. See, Clerk.

Long Branch, N. J.—Three ordinances calling for permanent street improvements have been adopted by Board of Commissioners. Portions of streets to be improved are as follows: Second ave. from Chelsea to Cedar; Third ave. from Morris to Bath, and Rockwell ave. from the tracks of the New Jersey Southern Railroad to Broadway.

Long Branch, N. J.—Resolution has been adopted by County Board of Freeholders to build Asbury ave. direct road to Freehold under State aid road law.

Merchantville, N. J.—Council has authorized \$100,000 bond issue for improving of various streets.

Newark, N. J.—Resolution is being considered for paving of Broad st. with wood block.

Perth Amboy, N. J.—Petition has been received asking for grading, curbing and paving of Mechanic st. between Washington st. and Buckingham ave.

Perth Amboy, N. J.—President John K. Sheehy, of Board of Education, and 38 others, have petitioned Board to curb and pave Cortlandt st. with asphalt blocks between Hall and Easton aves., and if possible, north of Easton ave., and to grade thoroughfare between Huntington st. and Hall ave.

Rahway, N. J.—Ordinance has been introduced by Councilman Valentine and passed on its first reading, providing for pavement of Irving st. from Milton ave. to Grand st. and Grand st. from Irving st. to St. George ave., and Main st. from Irving st. to the Pennsylvania Railroad.

Roselle, N. J.—Sidewalks for practically all of most traveled and important thoroughfares of Aldene section have been petitioned for by prominent property owners.

Trenton, N. J.—On recommendation of City Chemist Howard C. Hottel, City Commissioners have included in their budget appropriation for portable asphalt and repair plant.

Trenton, N. J.—Commissioner Fell has submitted report showing streets which will need repaving this year and estimating cost of work, as follows: South Broad st. from Greenwood ave. to Third st., west side only, vitrified brick, on present concrete foundation, \$4,250; Post-office alley, from Montgomery to Stockton sts., second-hand vitrified brick, on a sand cushion, \$292; Merchant st. from Canal to Stockton, stone macadam base with screenings filler, \$1,225; Pennington ave. from Warren to Frazer st., \$1,850; Chestnut ave. from

Greenwood to Hamilton ave., cleaning off and resurfacing with asphalt over old brick pavement, \$2,362; South Willow st., relay Belgian block on macadam base, \$670; Market and Clay sts., intersection, relay Belgian block on macadam base, \$237; East Front st., from Broad to Montgomery, vitrified brick on concrete base, \$3,966; West State st., from Calhoun st. to Overbrook ave., vitrified brick on present concrete foundation, \$28,875. Total cost of repaving streets is estimated by Engineer Swan, who made recommendations, at \$45,000.

Albany, N. Y.—Anticipating Legislature's action this year to appropriate \$10,000,000 for good roads construction from \$50,000,000 bond issue, Superintendent C. Gordon Reel, of State Highway Department, has prepared plans for upwards of 1,000 miles of highway improvement to be placed under construction as soon as funds are available. He plans to let contracts for construction of approximately 400 miles of State and 600 miles of State and county highways in March.

Brooklyn, N. Y.—Meeting of City Planning Committee has been called to consider widening of Ashland place.

Brookhaven, L. I., N. Y.—Improvement of roads in this town has been petitioned for.

Brooklyn, N. Y.—Resolution laying out extension of Flatbush ave., Brooklyn, from its present southerly terminus near prolongation of Ave. V to United States bulkhead line at Rockaway Inlet, has been approved by Board of Estimate and Apportionment.

Canandaigua, N. Y.—Petition has been introduced in meeting of Board of Supervisors asking that county construct improved road in town of East Bloomfield, from Bostwick's Corners to point west where highway meets present State road near Allen's Hill, distance of 3½ miles. Twenty thousand dollars would be required. Matter has been referred to Good Roads Committee.

Lockport, N. Y.—Six bids for grading, curbing and paving of North Transit st. with brick, and three bids for paving of Lock st. with asphalt, have been received by Common Council and referred to Committee on Streets for consideration. Bidders on N. Transit st. were as follows: H. P. Burgard Co., Buffalo, Bessemer block, \$40,000. John Johnson Construction Co., Buffalo, Bessemer shale, \$37,500; Olean wire cut lug, Conneaut wire cut lug or Allegheny Valley repressed block, \$37,500. C. N. Stainthorpe & Co., Bessemer shale, \$36,259; Conneaut wire cut paving block, \$36,259; Bula shale paving block, \$35,990. C. B. Whitmore Co., Metropolitan vitrified shale or Pennsylvania vitrified fire clay paving block, or with Bessemer vitrified shale paving brick block, \$32,860. Louis B. Gipp, Buffalo, Bessemer wire cut lug or Grove shale block, \$40,800; with Bessemer repressed shale block, \$40,800. S. V. R. Malcolm & Son, Medina, Conneaut brick, \$41,524. The Lock st. bidders were: H. P. Burgard Co., \$24,415. C. B. Whitmore & Co., 5-year guarantee, \$26,000; 10-year guarantee, \$26,600. Barber Asphalt Paving Co., \$28,900.

Lockport, N. Y.—City Clerk has been directed to advertise for bids for grading, curbing and paving of LaGrange st., from Pine to S. Transit st., with brick.

Port Chester, N. Y.—Bids will be received by Board of Trustees up to 8 p. m., March 3, for purchase of bonds for Glen ave. paving bonds in sum of \$15,000. Also for North Regent st. paving bonds in sum of \$2,000. William Ryan, President.

Rochester, N. Y.—At next meeting of Common Council, Alderman Charles A. Fisher, of the Tenth Ward, will probably introduce ordinance which will provide for improvement of Lake ave., between Lyell ave. and Driving Park ave., at total cost of \$157,400. The avenue will be widened to 45 ft.

Syracuse, N. Y.—Council has authorized improvement of Court st., from Third North to Seventh North sts., connecting with Bridgeport road, and paving of East Lafayette ave., from Salina st. to East Brighton ave., and of Maryland ave., from Euclid ave. to Westminster ave.

Whitestone, L. I., N. Y.—So as to have more direct communication with Flushing, property owners of Whitestone will ask Borough President Connolly to have Eighth, Eleventh and Fourteenth aves., in their village, legally opened to Broadway, Flushing. At present time local board has under consideration proposition to legally open Central ave., Flushing, to Whitestone.

Oklahoma City, Okla.—Considerable amount of road building work from funds furnished by local organizations is planned by State Good Roads Department, according to Sidney Suggs, Highway Commissioner. City of Kingfisher has agreed to raise \$1,000 for building improved highway into that town from any direction under supervision of Highway Department. Goltry, Anadarko and Stillwater all have offered to raise necessary funds to build roads into those towns under State supervision. Both Bristow and Sapulpa have conferred with department relative to highway leading from each of those towns to Cushing, and each has agreed to raise \$10,000 for purpose.

Eugene, Ore.—Security Savings Bank & Trust Co., of Toledo, O., has been awarded issue of \$32,850 of Eugene's street improvement bonds, at premium of \$217.50.

Hood River, Ore.—F. N. Bingham, an expert, has been appointed by City Council consulting paving engineer. He will make survey of needs of town and prepare specifications of work to be done. Improvements to cost \$30,000 are contemplated.

Portland, Ore.—City Engineer Hurlburt has recommended the establishment of municipal paving and repair plant.

Portland, Ore.—Bids for improvement of Thompson st. district in Rossmore have been rejected by Street Committee of Council, on ground that there had been error in advertisement for proposals. The Montague-O'Reilly Co., lowest bidder, proposed to lay asphaltic concrete pavement for \$107,280. Other proposals presented were for Hassam, gravel bitulithic and standard asphalt, but petition signed by 275 property owners in district asked that contract be awarded to lowest bidder.

Altoona, Pa.—Ordinance has been passed providing for paving of Fifteenth ave., between Eighteenth and Nineteenth st., with vitrified brick.

Chester, Pa.—Council has decided to ask for bids for opening of Knowles ave., from Scott ave. to Parker ave.

Erie, Pa.—Resolution has been presented authorizing City Engineer to prepare specifications and advertise for proposals to grade, pave and curb Cedar st., between Seventh and Eighth sts., Vine st. between Seventh and Eighth sts., and Ash st., between Seventh and Eighth sts.

Scranton, Pa.—Ordinances have been passed authorizing grading, paving and curbing of various streets. Ellsworth Kelly, City Clerk.

York, Pa.—Residents in lower end of York County are petitioning for State highway from Red Lion to Susquehanna River, at Long Level.

Austin, Tex.—Construction of large number of sidewalks is being planned.

Corsicana, Tex.—Commissioners' Court has ordered bond issue election for good roads. Amount of bonds will be about \$400,000.

Dallas, Tex.—Paving of Sycamore st. with bitulithic or some other paving material is petitioned for.

Fort Worth, Tex.—Plans for a scenic road contemplate construction of improved road from San Antonio to this part of State, through mountains and hills of Central West Texas.

Galveston, Tex.—Authority has been granted by Board to advertise for bids on following improvements: Paving with vitrified brick Ave. F, between Twenty-second and Twenty-fourth sts. Total estimated cost, \$6,346.10. City's portion, \$1,786.70. Paving with vitrified brick, the alley between Nineteenth and Twentieth, and Mechanic and Market sts. Total estimated cost, \$1,015.77. City's portion estimated at one-tenth.

Galveston, Tex.—Bids for improving Broadway have been received and referred to City Engineer Bickey for tabulation and report. Bids for concrete pavement and other improvements on Broadway, from east side of Tenth st. to east side of Fourteenth st., and from east side of Twenty-seventh st. to east side of Twenty-ninth st. have been received with following specifications: (a) Constructing complete about 16,277 sq. yds. of concrete pavement, per sq. yd.; (b) constructing complete about 4,690 sq. yds. of brick pavement on 4-in. concrete base, per sq. yd.; (c) constructing complete about 1,800 lin. ft. of concrete culverts, per lin. ft.; (d) constructing complete about 3,600 lin. ft. of concrete coping, per lin. ft.; (e) constructing complete about 387 cu. yds. of extra concrete, per cu. yd.; (f) constructing complete about 542 lin. ft.

of 8x12 concrete bulkheads, per lin. ft. Following are bids and bidders on this proposition: Isaac Heffron—(a) \$1.34 20-100, (b) \$2.20%, (c) \$1.88%, (d) 38½c., (e) \$6.32½, (f) \$33½c. P. J. Vaughan—(a) \$1.46, (b) \$2.29 (c) \$1.94, (d) 39½c., (e) \$6.59, (f) 29c. Freund & Quay—(a) \$1.42, (b) \$2.49 (Thurber blocks paving brick, 15 cts. extra), (c) \$2.51, (d) 40 cts., (e) \$7.40, (f) 40 cts. Bids for concrete pavement of Broadway, from east side of Fourteenth st. to east side of Twenty-fourth st., contained following specifications: (a) constructing complete about 27,615 sq. yds. of concrete pavement, per sq. yd., (b) constructing complete about 8,532 sq. yds. of pavement on a 4-in. concrete base, per sq. yd., (c) constructing complete about 2,228 lin. ft. concrete culverts, per lin. ft., (d) constructing complete about 5,100 lin. ft. concrete coping, per lin. ft., (e) constructing complete about 1,229 cu. yds. of extra concrete, per yd., (f) constructing complete about 1,682 lin. ft. of 8 by 12 concrete bulkheads, per lin. ft. There are three bidders for this work (Isaac Heffron, P. J. Vautrin and Freund & Quay). Their bids were identical with their bids printed above for same class of work on contract for pavement of Broadway from the east side of Tenth st. to east side of Fourteenth st., and from east side of Twenty-seventh st. to east side of Twenty-ninth st. Bids have been also received and referred to City Engineer Dickey for tabulation and report on contracts for following improvements of sidewalk, curbs and gutters. (1) around city's property on Market st., between Twenty-eighth and Twenty-ninth sts.; (2) along Broadway at various locations between Fourteenth and Twenty-fourth sts. The bids contained the following specifications: (a) 155 cu. yds. of sand filling, per cu. yd.; (b) 912 sq. yds. of concrete sidewalk, per sq. yd.; (c) 120 lin. ft. concrete curb, 36 ins. high, per lin. ft.; (d) 152 lin. ft. concrete curb, 12 ins. high, per lin. ft.; (e) 120 lin. ft. of concrete gutter, per lin. ft.; (f) 1,700 lin. ft. of concrete curb, per lin. ft. Bids and bidders on these propositions were as follows: Ed Rings—(a) no bid, (b) \$1.25, (c) \$1.08 (d) 43 cts., (e) 18 cts., (f) 41 cts. P. J. Vautrin—(a) no bid, (b) \$1.04, (c) 90 cts., (d) 39½ cts., (e) 25 cts., (f) 44 cts. A. C. Falligant—(a) \$1.25, (b) \$1.25, (c) 97 cts., (d) 50 cts., (e) 32 cts., (f) 57 cts.

San Antonio, Tex.—Widening of Commerce st., at cost of \$240,000, is under consideration.

San Antonio, Tex.—Members of Special Bond Issue Committee of Chamber of Commerce, are considering proposed paving improvements.

Waxahachie, Tex.—Citizens and property owners living on West Main st. have decided to pave street from public square to city limits. Distance to be paved is about one mile.

Brigham City, Utah.—About \$100,000 will be expended on highways during 1913.

Richmond, Va.—Bond issue for street work is being discussed by Highland Park Town Council.

Warwood, W. Va.—Bids will be advertised for concreting of 118 street crossings.

Everett, Wash.—An ordinance has been introduced for first reading by City Council calling for building of industrial road from Fourteenth st. to city's northern limits.

Everett, Wash.—Paving of Broadway, from Hewitt ave. to Sixteenth st. will probably be authorized.

Seattle, Wash.—Resolutions have been adopted for improvement of various streets.

Tacoma, Wash.—Ordinance has been adopted for improvement of various streets. W. W. Seymour, Mayor.

CONTRACTS AWARDED.

Burbank, Cal.—To Conner Contracting Co., Higgins Building, Los Angeles, contract for paving of Verdugo ave., at \$20,000. W. A. Dontanville, of Pasadena, was awarded contract for improving Palm ave., at \$20,000.

Los Angeles, Cal.—To R. H. McCray, 234 W. Thirty-eighth st., contract for grading, constructing Petrolithic sidewalks, cement curbs, gutters and sidewalks in Cudahy ranch, at \$60,000.

Los Angeles, Cal.—By Board of Public Works, for street improvements as follows: Alley west of Boyleston, from Third to first alley north of Third, awarded to O. L. Stevens at 36 cts. a sq. ft. for concrete paving; aggregate, \$1,356.41. Dorchester ave., from Western to Wilton, and in other streets, awarded

to Fairchild-Gilmore-Wilton Co., at 17 cts. a sq. ft. for asphalt paving, 17 cts. a sq. ft. for asphalt regrading and repaving, 35 cts. a lin. ft. for cement curb, 30 cts. a sq. ft. for vitrified block gutter, 30 cts. a sq. ft. for reconstruction of vitrified block gutter, 40 cts. a sq. ft. for granite block gutter; aggregate, \$43,018.44. Ezra st., from Stephenson to first alley northeasterly, awarded to O. L. Stevens at \$3.75 a lin. ft. for grading and graveling, 35 cts. a lin. ft. for cement curb, 40 cts. a sq. ft. for vitrified block gutter, 12.5 cts. a sq. ft. for sidewalk, \$800 for storm drains; aggregate, \$4,480.55.

Pasadena, Cal.—For improvement of Hammond st., to A. C. Hughes, at 8 cts. per sq. ft. for sidewalk.

Watts, Cal.—To J. Hein, of Los Angeles, contract for constructing 68,000 sq. ft. of cement sidewalks on Rudolph st. at 9½ cts. per sq. ft. J. O. Stanford, of Long Beach, has secured contract at 9½ cts. per sq. ft. for constructing 6,800 sq. ft. cement sidewalks on Rosella st.

Live Oak, Fla.—For paving of streets of Live Oak, to Alabama Paving Co., of Birmingham, Ala., which has contracted to pave streets with vitrified brick at \$1.78 per sq. yd. and granite curbing at 43 cts. per lin. ft. Brick will be laid on edge with cement filler.

Tampa, Fla.—By Board of Public Works, contract for 5,000,000 paving brick and 50,000 lin. ft. of granite curbing. The brick will be furnished by two concerns, Westport Paving Brick Co. and Southern Clay Mfg. Co., of Chattanooga, Tenn. Curbing contract goes to Georgia-Quincy Co.

Cornwall, Ia.—For grading, curbing and paving portions of Davis, Loomis and Grove aves., Adams, Seventh, Eighth and Tenth sts., from plans of Theo. S. De Lay, of Creston, to Dunnegan & Hamilton, of Shenandoah, at following bid: 22,698 sq. yds. 18 per cent. Rattler test brick with 4-in. concrete base, \$1,83½; 17,019 lin. ft. curb and gutter, 67½ cts.; 785 sq. yds. concrete alley pavement, \$1.25; total, \$54,120.

Crawfordsville, Ind.—To Snyder & Barnett, contract for constructing James S. Miles gravel road, in Montgomery County, at \$10,847.

Louisville, Ky.—If Board of Public Works decides on asphalt, Third st. will be reconstructed from Main to Broadway at cost of \$31,176.35 by Henry Bickel Asphalt Co. Mr. Bickel's bid for creosoted wooden block for same st. was also lowest by \$50 as details of Bickel Co. bid for this job total \$46,493.40. In all probability board will order street reconstructed with asphalt, although bids were taken on wooden blocks and vitrified brick. Bickel Co. was low on all three types of paving. Other asphalt bids were: Louisville Asphalt Co., \$32,100.40; S. S. Saxton Co., \$35,596.85; Jefferson County Construction Co., \$36,114.70, and the American Standard Asphalt Co., \$36,629.90. Louisville Asphalt Co. was lowest bidder on Fourth st., between Market and Jefferson sts., on asphalt, brick and wooden block. Its bid on wooden block, which will probably be used, was \$6,877.56. Lowest bidders were, on Garvin place, from Oak to Ormsby sts., asphalt, Bickel Asphalt Paving Co., \$5,396.50. Oak st., from Fourth to Seventh st., asphalt, Jefferson County Construction Co., New Albany, Ind., \$12,398.70. Oak st., from Brook to Third sts., asphalt, Jefferson County Construction Co., \$13,718.40. Market st., from Campbell to Johnson sts., brick, G. W. Gosnell & Co., \$17,436.40. Oak st., from Logan to Swan sts., brick, L. R. Figg, \$3,001.50. Oak st., from Tenth to Eleventh sts., brick, \$1,403.50. Market st., from Twenty-third to Twenty-sixth sts., brick, L. R. Figg, \$13,288.40.

Baltimore, Md.—Bids have been opened by Board of Awards for eight paving contracts aggregating approximately \$230,000. Contract No. 43, vitrified brick, will evidently go to Martin J. Reach, at his bid of \$2.16 per sq. yd. At \$2.19 per sq. yd. Patrick F. Reddington, was the next lowest bidder. Patrick Flanagan & Co., is lowest bidder for Contract No. 45, calling for sheet asphalt and bituminous concrete. Lowest bidder for Contract 46, vitrified brick, was Patrick F. Reddington, at \$2.24 per sq. yd. Martin J. Beach submitted bid of \$2.30 per sq. yd., but it was found that his bid was not properly signed and it was rejected. Reddington concern also submitted lowest bid for Contract 47, another vitrified brick job. Contract 48 calls for Belgian block. George Long Contracting Co. is lowest bidder at \$3.43 per sq. yd. Patrick F. Reddington submitted next lowest bid, \$3.50. Belgian and Hassan block were put into compe-

tition in Contract 49. The Hasson Contracting Co., makers of Hassan block, and the George Long Contracting Co., are evidently tied for this contract. Contract 50, the Fort ave. job, will evidently go to Patrick Flanagan, the lowest bidder, at his figure of \$1.70 per sq. yd. Contract 51, calling for bituminous concrete and sheet asphalt, will evidently be awarded to F. E. Schneider Paving Co., which bid \$1.38 per sq. yd. for bituminous concrete and \$1.85 per sq. yd. for sheet asphalt.

St. Louis, Mo.—For paving, by Board of Public Improvements, as follows: Asphalt on Labadie, Arkansas and Carrie aves. and Abner and William pl., to F. P. McCormick, Muskogee, Okla., at a total of \$45,495, and asphalt on Delor st., to the Trinidad Asphalt Mfg. Co., at \$7,732; bitulithic on Maffitt ave., to Granite Bituminous Paving Co., Pierce Building, \$12,901; brick paving on Lexington ave. and Natural Bridge ave., to Timothy E. Cavanagh, 3063 Madison st., at \$32,553; on Prairie and Bessie aves., to Hanick Quarry & Construction Co., Euclid and Ashland aves., at \$10,292; on Virginia and Duncan aves., and Meramac St., to Eyerman Construction Co., 1216 S. Grand ave., at \$30,242; on Glasgow and Natural Bridge aves., to Skrainka Construction Co., Security Building, \$33,880; on Twenty-second and Newby sts., to Perkinson Bros. Co., 3237 Carter ave., at \$20,105; on Idaho, Gravois and Carter aves., to Ruecking Construction Co., 403-6 Marine ave., at \$50,814, and Billion ave., to John B. Turner, 620 Chestnut st., at \$28,743. For reconstruction of Mulanphy st., to Bambrick Bros., 5229 St. Louis ave., at \$21,593; reconstructing Herbert st., to Skrainka Construction Co., at \$21,086, and on Ponrose st., to John McMahon, Wainwright Building, at \$5,814.

Long Branch, N. J.—To C. H. Winans & Co., of Linden, contract for surfacing roadway of new Takanassee bridge at Long Branch with amasite. Their bid was for \$3,420.

Buffalo, N. Y.—Bids have been opened in Department of Public Works for annual sidewalk construction work, lowest bidder being People's Paving Co., at about 8 cts. a sq. ft. for depth of 3 ins.

Rochester, N. Y.—By Board of Contract, contracts as follows: For paving, resurfacing Oxford st., at \$20,030; with asphalt, Hovey st., at \$6,700, Orange st. at \$7,607, and Michigan st. at \$18,461, to Whitman Rauber & Vicinus, 279 South ave.; brick pavement on Geimer st. at \$7,720, to F. L. Hagman Co.; with brick on Jackson st. to H. N. Cowles, of Rochester, at \$7,694; with brick on Campbell st. at \$21,839, to Thomas Holahan, 164 Lewis st., and asphalt on Benton st. at \$30,850 to Rochester Vulcanite Pavement Co.

Newtown Falls, O.—For construction of 6 miles of macadam road in Newtown Falls, to Kennedy Co., of Youngstown, at \$10,840.

New Concord, O.—By village, contract for 16,500 sq. yds. vitrified block paving, to Houston & Henderson, of Logan, at \$31,000.

Braddock, Pa.—By Borough Council of North Braddock, contract to McCrady Bros., Braddock, at \$2,246.25, for about 250 cu. yds. grading, 725 sq. yds. brick paving and 450 lin. ft. combination curb and gutter.

Providence, R. I.—To Texas Oil Co., of Providence, contract to supply road oil for use by city for coming season by Board of Contract and Supply. Price named was 5½ cts. a gallon f. o. b. at city yard. Only other competitor for contract, the Standard Oil Co., set its price at 5½ cts. Contracts for ordinary and improved granite paving blocks, bids for which were opened last week, were awarded as follows: 50,000 ordinary blocks, R. E. Marriott & Sons, Oneco, Conn., at \$61 a 1,000; 25,000 ordinary blocks, with an option on 25,000 more, to Nelson A. Bennett, Sterling, Conn., at \$61; 100,000 and 50,000 ordinary blocks, to the New England Granite Works, Westerly, at \$66 and \$67 respectively; 100,000 improved blocks to the Booth Bros. & Hurricane Isle Granite Co., New York, at \$64.50; 100,000 and 100,000 improved blocks, to New England Granite Co., Westerly, at \$64 and \$65 respectively.

Galveston, Tex.—Contract for surfacing several blocks of Fourteenth st. with mud shell has been awarded to W. D. Haden. Contract totaled \$2,746.32 for surfacing street from Aves. E to H and M to N.

Norfolk, Va.—The Sixth Ward Local Board of Improvement have decided to recommend to Council award of con-

tract for High st. construction work to McGuire Construction Co., of Norfolk, who was lowest bidder. According to figures he submitted, work will cost approximately \$55,000. That includes cost of curbing, grading and paving.

Everett, Wash.—By Commissioners for improvement of Oakes ave., from Sixteenth to Twenty-second st., to F. K. Ffolliotte, at \$17,017.50.

SEWERAGE

Los Angeles, Cal.—At request of property owners, Council decided to instruct City Engineer to proceed with plans for improving two of streets in Arroyo de la Sacatela storm sewer district without waiting for completion of storm drain plans. Streets on which plans will at once be prepared are: Virgil ave., from Santa Monica to Melrose, and Lockwood ave., from Virgil to Vermont.

Sacramento, Cal.—Installation of sewer system in annexed territory in Oak Park is being discussed.

Delmar, Del.—Citizens may be asked to vote on issuing \$40,000 bonds for sewer system.

Cornelia, Ga.—City has voted for bonds to install sewer and water works systems.

Michigan City, Ind.—Board of Public Works will shortly let contracts for construction of trunk sewer in three parts of 6,500, 4,400 and 3,500 ft. respectively. Harry M. Miles is City Engineer.

South Bend, Ind.—Five sewer improvements have been ordered by Board of Public Works.

Topeka, Kan.—Provision for Auburn-dale sewer has been presented for first reading. Petition provided that sewer be built to include territory north of Sixth ave. to Eugene st., and west of Stevens to city limits. Estimated cost of construction is \$20,000. System will require 11,500 ft. of 8-in., 2,000 ft. of 10-in. and 3,150 ft. of 12-in. pipe. There are to be 49 manholes and 8 flush tanks.

Amherst, Mass.—Comprehensive report on sewer system for Amherst, including diagrams and estimates of cost, has been made by Civil Engineer W. C. Tannatt, Jr., who estimates cost of new lines and improvements which should be made during present year, including the Hallock street sewer and connections and investigation of old sewers to be, excluding land damage, \$43,338.87.

Taunton, Mass.—Bill providing for special sewer loan of \$250,000 for Fall River, which Mayor Kay, of that city, has been advocating, has passed both branches of Legislature.

Worcester, Mass.—Committee on Sewers of City Council has recommended completion of Mann st. sewer, at estimated cost of \$20,000.

Rahway, N. J.—The tank system of sewage disposal will probably be adopted. In plans drawn by Engineer Potts there are six tanks shown with capacity ranging from 51,000 to 81,600 gallons, known as sterilization and settling tanks.

Port Chester, N. Y.—Bids will be received by Board of Trustees until 8 p. m. March 3 for purchase of William st. sewer district bonds in sum of \$2,000. William Ryan, President.

Delaware, O.—Bids will be received about March 25 for construction of pipe sewers at estimated cost of \$8,000.

Vinita, Okla.—Ordinance has been passed by Council providing for issue of \$20,000 bonds for construction of sanitary sewers. A. J. Green is City Clerk.

Altoona, Pa.—Ordinance has been passed providing for 8-in. sewer in Eighteenth alley, between Thirteenth and Fourteenth sts.

Erie, Pa.—All bids have been rejected on laying of 9-in. sewer in Perry st., from Twenty-fifth st. southwardly 250 ft. Joseph McCormick & Bros. was lowest bidder on this work, they offering to lay sewer for \$1.15 a ft., while Clement Wolfram asked \$1.23 a ft. for same work.

Erie, Pa.—Resolution has been presented authorizing City Engineer to advertise for bids for installation of 40-in. sewer in Dunn st., from point 280 ft. north of Lake road, north to lake.

Seranton, Pa.—Bond issue for construction of sewers is being considered.

Austin, Tex.—Commissioner P. W. Powell, of the Department of Streets and Public Improvements, has recommended construction of sewage disposal plant.

Galveston, Tex.—Authority has been granted by Board to advertise for constructing 30-in. vitrified brick pipe drain on Twenty-fifth st., across Broadway, prior to installation of new Broadway paving. Total estimated cost, \$487.50.

Simcoe, Ont.—Bids will be received in March for construction of sewer system from plans of Chipman & Power, of Toronto; estimated cost, \$70,000.

CONTRACTS AWARDED.

Los Angeles, Cal.—By Board of Public Works, for sewer improvements as follows: Adair st., from Washington to first alley southwesterly, awarded to J. Mohan, at \$550 for sewer complete. Atlantic st., from Wilson to Lawrence, and in other streets, awarded to J. C. Wukojewich at \$1,021 for sewer complete. Eighth ave., from Washington to Twenty-first, awarded to J. J. Veselich at \$650 for sewer complete. Hall-dale ave., from Browning to Thirty-ninth, awarded to Sam Kruly at \$933 for sewer complete. Hoover st., from Slauson to Fifty-second, and in other streets and rights-of-way, awarded to John Radich at \$27,200 for sewer complete. Kingsley drive, from Wilshire to Fifth, awarded to George Procvich at \$1,643 for sewer complete. Mission road, from Sichel to Griffin, awarded to J. C. Wukojewich at \$940 for sewer complete. Reservoir st., from Mohawk to first alley easterly, and in the first alley east of Mohawk, awarded to Sam Kruly at \$579.36 for sewer complete.

Bedford, Ind.—To J. J. Quinn & Co., Bedford, Ind., contract at Bedford for construction of East Bedford sewer at \$22,500.

Belmont, Ia.—By city, contract for 8,313 ft. vitrified sewer pipe, 12 to 8-in., to M. McElligott, 1408 Main st., Evans-ton, Ill., at \$4,771; contract for settling tank was let to H. J. Klemme (Ltd.) Co., of Belmont, at \$1,180. Engineers are Tschirgi & Son, of Cedar Rapids.

Maplewood, Mo.—To R. E. Cooney, 3511 Wyoming st., St. Louis, Mo., con-

tract by city for construction of sewer in Manchester ave., for \$13,600.

Marshall, Mo.—By City Council, contract for construction of sewers in sub-district No. 6 of District No. 2, to A. Jaick Co., for \$8,356. Work includes the following: 4,735 lin. ft. of 6-in. sewer, 2,180 lin. ft. of 8-in. sewer, 2,251 lin. ft. of 10-in. sewer, 20 manholes, 4 drop manholes, 10 flush tanks and 460 lin. ft. of 6-in. connections.

New Berlin, O.—By Village Council, contracts as follows: To F. R. Stone, Lima, for sewer system, \$9,294; disposal plant, \$6,432, and laying pipe, \$2,847. To Massillon Iron & Steel Co., Massillon, for c.-l. water pipe, \$5,661, and for hydrants and valves to the Darling Pump Mfg. Co., of Williamsport, Pa., \$688.

Troy, O.—By city, for construction of sanitary sewers, to Fidler & Brock, Springfield, O., at \$32,948.17. Other bids as follows: Kohbarger & Hoyle, Marion, O., \$43,099.85; Sieverling & Fairbairn, Springfield, O., \$41,422.59; W. J. Irwin & Co., Greenville, O., \$41,105.40, and Shafer & Dill, Dayton, O., \$35,745.78. Alva W. Scott, City Engineer.

WATER SUPPLY

Sacramento, Cal.—City Engineer has been instructed to draw plans and specifications for extension of water distributing system in annexed territory in Oak Park.

Sierra Madre, Cal.—Citizens are said to have voted to issue \$20,000 bonds, to be used for installing new pumping plant and extending and improving water mains.

Suisun, Cal.—Bonds in sum of \$20,000 have been sold for improvement of water works.

Cornelia, Ga.—City of Cornelia has voted for bonds to install water works and sewer systems.

Lewiston, Ida.—City Engineer Wrighter will prepare plans for extension of intake at city water works.

Elk Falls, Kan.—Question of constructing water works is being considered.

Trenton, N. J.—Experts have approved of \$160,000 bond issue for filtration plant.

Schenectady, N. Y.—Plans are about completed for improving water service.

Geneva, O.—Village Council has voted to issue \$10,000 bonds to build new water works dam at Harpersfield.

Toledo, O.—Plan to extend city water mains to Wildwood addition, south of city, plotted by Wiltie Realty Co., has been approved by Public Improvement Committee of Council.

Eugene, Ore.—Members of City Council and of Eugene Water Board will hold executive meeting in order to discuss at length Water Board's plans for improvement of water system.

Homestead, Pa.—City will vote on \$86,000 bond issue for installation of filtration plant.

McIntosh, S. D.—Citizens are said to have voted to issue \$12,000 bonds for improving water works, to include 2 wells and 50-ft. tower.

Nashville, Tenn.—Thursday, May 29, is date set by Finance Committee of City Council for submission for ratifi-

Belmar, N. J.—Bids received for proposed sewer extension, with totals, as follows: (a) T. J. McGovern Cont. Co., Trenton, N. J., \$21,425.20; (b) J. J. Hughes, Newark, N. J., \$25,338.95; (c) A. Costa, Orange, N. J., \$26,266.55; (d) Sun Dredging & Const. Co., Philadelphia, Pa., \$26,738.35; (e) Pierson Engr. & Const. Co., Hartford, Conn., \$28,786; (f) John W. Heller, Newark, N. J., \$29,012; (g) Dan Donovan, Bayonne, N. J., \$31,585.51; (h) Liddell & Pfeiffer, Perth Amboy, N. J., \$31,932; (i) Part-ridge & Baker, Hohokus, N. J., \$34,007.26; (j) Sutton & Corson Co., Ocean City, N. J., \$34,331.32; (k) C. L. Brownmiller, Cape May, N. J., \$37,678.65; (l) P. J. Monaghan, Perth Amboy, N. J., \$39,418.10; (m) Atlantic Const. & Supply Co., Atlantic City, N. J., \$40,354.05; (n) D'Amato & Stefanello, Newark, N. J., \$41,341.30; (o) Watson Eng. & Const. Co., New York City, \$79,295.67.

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)
7,930 ft. 8" V. pipe, 0'-6".....	\$0.35	\$0.44	\$0.46	\$0.65	\$0.57	\$0.60	\$0.88	\$0.72	\$0.48	\$0.70	\$0.88	\$0.90	\$0.70	\$1.00	\$2.31
11,090 ft. 8" V. pipe, 6'-8".....	.45	.44	.60	.70	.70	.75	.96	.76	1.12	.82	1.10	1.00	1.15	1.25	2.52
535 ft. 8" V. pipe, 8'-10".....	.65	.54	.85	.77	1.00	.85	1.01	.82	1.50	1.49	1.50	1.10	1.65	1.54	2.93
ft. 8" V. pipe, 10'-12".....	.85	1.00	2.30	.90	2.00	1.00	1.08	.90	2.05	1.85	2.25	1.60	2.10	2.00	3.73
530 ft. 10" V. pipe, 0'-6".....	.45	.54	.63	.76	.75	.70	.96	.86	.53	.93	.98	1.00	.80	1.10	2.56
2,495 ft. 10" V. pipe, 6'-8".....	.85	.64	.75	.80	.78	.85	1.07	.90	.70	.99	1.20	1.10	1.25	1.32	2.81
1 ft. 10" V. pipe, 8'-10".....	.95	2.00	2.00	.88	1.75	1.00	1.16	1.00	1.06	1.60	1.60	1.85	1.80	1.75	2.92
ft. 12" V. pipe, 0'-6".....	1.50	1.75	.78	.79	.88	.80	1.02	1.00	.60	1.03	1.13	1.30	.90	1.25	2.65
ft. 12" V. pipe, 6'-8".....	1.75	1.75	.90	.83	1.03	.95	1.12	1.10	1.18	1.09	1.35	1.55	1.40	1.40	2.88
ft. 12" V. pipe, 8'-10".....	2.00	1.75	2.15	.91	1.62	1.10	1.20	1.20	1.48	1.67	1.75	1.70	2.00	2.00	2.98
575 ft. 18" V. pipe, 0'-6".....	.85	1.80	1.20	1.23	1.27	1.60	1.15	1.80	1.30	1.39	1.35	1.55	1.75	1.55	3.19
400 ft. 18" V. pipe, 6'-8".....	1.00	2.10	1.34	1.27	1.69	1.80	1.30	2.00	1.78	1.45	1.75	1.75	2.15	1.95	3.40
1,520 ft. 18" V. pipe, 8'-10".....	1.50	2.35	1.90	1.35	2.00	2.05	1.45	2.30	2.18	2.07	2.25	1.90	3.00	2.40	4.03
1,550 ft. 18" V. pipe, 10'-12".....	2.00	2.65	2.74	1.50	2.50	2.25	1.65	2.50	3.00	2.43	3.10	2.15	4.00	2.90	4.52
215 ft. 18" V. pipe, 12'-14".....	2.50	2.65	4.59	1.60	2.78	2.50	1.80	3.00	3.50	2.74	4.00	2.90	5.00	3.50	6.26
79 Manholes, 8 ft.	40.00	50.00	36.00	49.50	44.00	40.00	28.00	45.00	48.00	71.71	33.50	30.00	45.00	45.00	54.40
2 Manholes, extra depth.	5.00	5.00	5.00	10.00	7.00	5.00	5.00	4.00	3.25	6.25	3.00	6.25	5.00	5.00	8.37
22 Lampholes.	10.00	6.00	9.00	16.35	11.30	15.00	7.00	9.50	7.50	9.65	15.00	7.00	10.00	10.00	9.73
100 House connections. ....	.30	1.50	.60	.25	2.00	.50	1.00	.40	.15	2.10	.30	.48	.35	.75	.49
10,000 B. M. foundat'n timber.	50.00	1.00	60.00	45.00	50.00	40.00	70.00	40.00	55.00	71.00	40.00	45.00	60.00	40.00	59.25
1,000 Sheathing timber.	30.00	60.00	45.00	35.00	30.00	38.00	60.00	40.00	35.00	30.00	30.00	30.00	35.00	35.00	39.40
1 ton cast-iron pipe.	35.00	60.00	100.00	35.00	75.00	60.00	40.00	50.00	50.00	77.78	50.00	65.00	80.00	50.00	52.40
20 yds. concrete.	8.00	15.00	8.00	7.00	8.00	8.00	12.00	7.00	8.00	125.00	6.50	7.50	8.00	7.50	7.95

cation of \$2,000,000 bond issue for construction of city reservoir.

Nashville, Tenn.—Finance Committee has recommended bill appropriating \$79,800 for tapping machines for water mains.

Salt Lake City, Utah.—Expenditure of proposed \$600,000 bond issue for increasing water supply and improving distributing system is being discussed.

Salt Lake City, Utah.—City Commissioners are said to have appropriated sufficient sum to allow for purchase of about 1,000 meters.

Chehalis, Wash.—Chehalis and Centralia are assured pure supply of gravity water as soon as system can be built.

St. Catharines, Ont., Can.—Installation of filtration plant has been recommended.

CONTRACT AWARDED.

Decatur, Ill.—For filtration plant, by city, to New York Continental-Jewell Filtration Co., New York City, \$129,899. Other bids as follows: Norwood Engineering Co., Florence, Mass., \$136,833; Pittsburgh Filter Mfg. Co., Pittsburgh, Pa., \$142,610; Beers-Offutt Construction Co., Fort Wayne, Ind., \$151,725.

Helmar, N. J.—Bids received for proposed water extension, with totals, as follows: (a) Partridge & Burke, Hohenkous, N. J., \$18,370.80; (b) T. J. McGovern, Trenton, N. J., \$18,865; (c) Monmouth Construction Co., Red Bank, N. J., \$19,183.25; (d) Antonio Lambo, Waterbury, Conn., \$19,495.50; (e) H. K. Corbin, New York City, \$19,831; (f) Antonio Costa, Orange, N. J., \$20,352.50; (g) J. J. Hughes, Newark, N. J., \$20,536.48; (h) Daniel Donovan, Bayonne, N. J., \$20,727; (i) Kelley-McFeely, Camden, N. J., \$22,056.84; (j) Sutton & Corson, Ocean City, N. J., \$22,229.17; (k) William Horne & Co., New York City, \$22,240; (l) W. F. Norton Co., New York City, \$22,702; (m) Pierson Engineering & Construction Co., Hartford, Conn., \$23,113.60; (n) Atlantic Construction & Supply Co., Atlantic City, N. J., \$23,958.35; (o) Watson Engineering & Construction Co., New York City, \$24,877.35; (p) Henry E. Fox, New York City, \$24,976.25; (q) Liddle & Pfeffer, Perth Amboy, N. J., \$25,368.75; (r) Sun Dredging & Construction Co., Philadelphia, Pa., \$27,687.50; (s) John W. Heller, Newark, N. J., \$29,702.25; (t) P. J. Monaghan, Perth Amboy, N. J., \$29,819.25; (u) Edward Jackman, White Plains, N. Y., \$30,193.50; (v) Joseph Gripp, New York City, \$35,549; (w) D'Amato & Stefanelli, Newark, N. J., \$41,939.75. Clyde Potts, Civil and Sanitary Engineer, 30 Church st., New York City. Itimized bid of lowest bidder is as follows: C-i, pipe, 415 tons, at \$26.10; specials, 6 1/2 tons, at \$60; laying 4-in. c-i. pipe, 14,200 ft., at 18 1/2 cts.; 6,700 ft. 6-in. c-i. pipe, at 20 cts.; 8-in. c-i. pipe, at 23 1/2 cts.; 5,100 ft. 10-in. c-i. pipe, at 27 cts.; installing 30 4-in. valves, at \$10.35; 10 6-in. valves, at \$14.70; 8-in. valves, at \$20.25; 8 10-in. valves, at \$28; 40 hydrants, at \$27.20.

Port Arthur, Ont.—For furnishing lap-welded steel pipe, to Drummond, McCall & Co., of Montreal, Que., at \$191,306. The Rensselaer Valve Co., Troy, N. Y., secured contract for valves.

Yankton, S. D.—For construction of water works system as follows: Division 1—Brick pumping station equipped with two electrically driven centrifugal turbine or volute pumps of 300 gals. per minute capacity; one centrifugal turbine or volute booster pump of 1,000 gals. per minute capacity, belt connected to 60 h.-p. distillate or fuel oil engine; remote control and automatic starter for service pumps and all the necessary piping, valves and equipment. Division 2—One ingot iron tank, 400,000 gals. capacity, on steel tower 30 ft. high; foundations; two valves and valve chamber, complete. Division 3—Trenching, laying and finishing complete the distribution system, consisting of 34,767 ft. of 6-in., 5,408 ft. of 8-in., 7,031 ft. of 10-in., and 1,276 ft. of 12-in. cast-iron pipe; 37 6-in. valves, 7 8-in. valves, 9 10-in. valves, 567 service connections; 44 fire hydrants; 34,424 lbs. of special castings for cast-iron pipe. Chicago Bridge & Iron Works Co., Chicago, Ill., (2) \$12,800; Ellerman & McLain Construction Co., Yankton, S. D., (3) \$51,212; Weiss Construction Co., Omaha, Neb., (1) \$10,200, (2) \$12,900, (3) \$51,240; Des Moines Bridge & Iron Works, Des Moines, Ia., (2) \$13,500, (3) \$55,136; Lewis & Leeder, Sioux City, Ia., (1) \$11,800, (2) \$54,190; Fairbanks, Morse & Co., Omaha, Neb., (1) \$8,350; Goetz Construction Co., Yankton, S. D., (1) \$10,800, (2) \$14,976, (3) \$56,614; W. E. Lovell, Minneapolis,

Minn., (1) \$8,200, (2) \$12,500, (3) \$52,000. Contract for pipe awarded to Ellerman & McLain Co., and for tank to Chicago Bridge & Iron Works; pumping plant contract not awarded.

Victoria, B. C.—By City Council Committee, contract for furnishing pipe for new water system, to Evans, Colman & Evans, of Vancouver, at \$69,059; to Sydney Island Brick & Tile Co., at \$13.75 per M for sewer brick, and Evans, Colman & Evans Co., at \$17.15 per M for sewer brick of larger size.

LIGHTING AND POWER

Bessemer, Ala.—J. B. McCrary & Co., of Atlanta, Ga., will make surveys, etc., for proposed municipal electric light plant, to cost about \$35,000.

Tuscaloosa, Ala.—Fred S. Morris has secured franchise for gas plant. Work will begin at once.

Huntington Park, Cal.—Citizens have voted to issue \$5,000 bonds for lighting Slosson and Pacific boulevards.

Torrington, Conn.—The Boro Fathers have voted to make extensive improvements in lighting Main st., from Center bridge to the corner of Church st.

Ames, Ia.—Proposition to issue bonds to establish municipal electric light plant has been carried.

Fountain, Ia.—City Council is considering construction of electric light plant to cost about \$7,500.

Chicago, Ill.—Within two months 107 electric arc lights will be installed in Dearborn st., between Lake and Polk sts. The Dearborn Street Improvement Association has agreed to pay for installation and maintenance of 87 of them. City will maintain remaining 29, number now allotted to street.

Evansville, Ind.—The West Side Business Men's Association will apply shortly to Board of Works for an electric light franchise.

Elizabeth, N. J.—Establishment of municipal lighting plant is being discussed by City Council, and president has been authorized to appoint committee to investigate proposal.

Woodbury, N. J.—City Clerk Starr has been authorized to advertise for bids for lighting city with gas, arc and incandescent electric lights for periods of one, three and five years. Contract with Public Service Corporation, which has lighted city for years, will expire in June, and it is probable that there will be competition this year. City will not construct municipal plant at once, although people voted for it some years ago.

Rochester, N. Y.—City Engineer E. A. Fisher is preparing maps with reference to introduction of different system of lighting in West ave., from Erie Canal to city line, in Elm st., Lowell st. and North st.

Erie, Pa.—Council has rejected proposals received for lighting city hall. Bids will be readvertised.

Seranton, Pa.—Ordinance authorizing erection and maintenance of additional street lights has been passed by Council.

Providence, R. I.—Improvements to street lighting system have been authorized.

Galveston, Tex.—Authority has been granted to advertise for building extension to city lighting plant at water works station at cost of \$3,500 for two transformers, each having 50-light capacity.

Galveston, Tex.—Creation of "Great White Way" on Seawall boulevard to extend from east side of Nineteenth st. to east side of Twenty-seventh st. has been assured when Board of County Commissioners passed order instructing County Auditor to advertise for bids for installation of 5-light posts on both sides of boulevard between two streets named.

Pearsall, Tex.—At meeting of City Council it was decided to put in more and larger street-lights in business section of city.

Lynchburg, Va.—Probable cost of installing new lighting system in business section of city is being discussed.

Cedarburg, Wis.—Bids will be received by City Clerk up to 7.30 p. m., Feb. 26, for \$12,000 worth of Electric light bonds. F. G. Schmette, City Clerk.

FIRE EQUIPMENT

Jonesboro, Ark.—L. D. Hickey, Chief Fire Dept., is in the market for second-hand combination chemical and hose wagon.

Los Angeles, Cal.—Plans for new engine house for Los Angeles have been completed by J. J. Backus, chief build-

ing inspector, and are in hands of municipal art commission for approval. It will be erected at 14th st. and Central ave.

Sacramento, Cal.—Fire Chief Charles W. Anderson recommends installation of additional fire equipment.

New Britain, Conn.—Improvements in fire and police departments are being considered.

Waterbury, Conn.—Bids from seven companies manufacturing automobile fire apparatus have been received by Board of Public Safety. Bidders and their prices for combination pump engine and hose wagon, on which they presented estimates, were as follows: The Webb Co., Allentown, Pa., \$7,500; Ahrens-Fox Fire Engine Co., Boston, Mass., \$8,435; Watrous Engineering Works Co., St. Paul, Minn., \$8,500; American-La France Co., Elmira, N. Y., \$8,500; Robinson Fire Apparatus Mfg. Co., Jumbo No. 1, combination pumping engine and hose wagon, \$8,450; Robinson Fire Apparatus Mfg. Co., Jumbo No. 2 machine, \$7,950.

Washington, D. C.—Installation of motor fire engine at Brightwood will be urged by Takoma Park Citizens' Association, and District Commissioners will be asked to replace the present horse-drawn apparatus at No. 22 Engine Company with horseless fire apparatus.

Augusta, Ga.—Appropriation Committee has authorized funds for construction of fire engine house to be located on The Hill; also for motorizing Engine Company No. 2.

Thomasville, Ga.—City contemplates purchase of one motor machine as addition to Fire Department. A. A. Kiley, City Clerk.

Aurora, Ill.—Sum of \$5,000 has been appropriated for purchase of motor combination chemical and hose wagon, and \$3,200 for motor police patrol. John Fenton is Chairman of Fire and Water Committee.

Princeton, Ill.—Purchase of motor truck has been authorized.

Tremont, Ill.—Hose cart and 400 ft. of 2 1/2-in. hose will be purchased.

Indianapolis, Ind.—Ordinance appropriating \$75,000 for a new fire headquarters and municipal garage has been passed.

New Albany, Ky.—Purchase of automobile truck for fire department has been authorized.

Omaha, Neb.—Resolution will probably be passed providing for purchase of 5,000 ft. of hose.

Amsterdam, N. Y.—City officials have decided to purchase automobile fire truck.

Brooklyn, N. Y.—Erection of fire house in Cypress Hills section is urged.

Ithaca, N. Y.—Hose Company No. 1 has asked that city appropriate \$4,000 for automobile fire engine.

Lockport, N. Y.—Extension of fire-alarm system is being considered.

Oswego, N. Y.—County Almshouse at Mexico will be equipped with fire protection system at cost of \$3,000.

Rye, N. Y.—It is planned to purchase auto fire apparatus for Rye Village.

Syracuse, N. Y.—An ordinance introduced by Alderman John H. Bedford, of Fifteenth Ward, Board of Contract and Supply was authorized to advertise for bids on contract for completion of central fire alarm system and equipment, prices to be approved by Board of Estimate and Apportionment.

Lancaster, O.—Motor combination chemical and hose wagon will probably be purchased.

Martins Ferry, O.—Sum of \$10,000 has been appropriated for purchase of motor triple combination pump, chemical and hose wagon.

Carbondale, Pa.—Councils are considering improvement of fire-fighting equipment.

Erie, Pa.—Installation of fire-alarm system is being discussed.

York, Pa.—York Councils have authorized purchase of auto combination chemical and hose wagon for new Eagle Fire Company.

Williamsport, Pa.—Special committee has recommended for city a 50-box fire-alarm system which is estimated to cost \$20,000.

Newport, R. I.—Fire Chief Kirwin has advocated purchase of new steamer to replace No. 1 at cost of \$5,000. It has also been voted to purchase 1,500 ft. of 2 1/2-in. wax and para gum-treated fire hose.

Nashville, Tenn.—Finance Committee has recommended bill appropriating \$2,000 for purchase of fire-alarm wire and poles, \$3,000 for purchase of fire hose, and \$17,000 for purchase of two motor

combination fire engines, chemical and hose cars.

Abilene, Tex.—At special meeting of Abilene City Commission members unanimously voted to buy motor fire engine. The Commission decided on one costing \$7,500.

Brigham, Utah.—Purchase of auto fire engine will probably be authorized.

Seattle, Wash.—Resolution has been passed authorizing and directing Board of Public Works to purchase modern auto-propelled fire apparatus where in certain ordinances, horse-drawn apparatus was specified.

CONTRACTS AWARDED.

Selma, Cal.—For furnishing motor combination chemical and hose wagon by City Clerk: to Seagrave Co., \$5,940. Other bids as follows: Pope Hartford Co., \$5,950; White Co., 60-h.p. \$6,500, 40-h.p. \$5,800 and 30-h.p. \$5,250; American-La France Fire Engine Co., \$6,200; Webb Co., \$5,900. Contract was awarded to the Seagrave Co., on Feb. 6.

Daytona, Fla.—By city for automobile fire truck to American-La France Fire Engine Co., of Elmira, N. Y.

Princeton, Ill.—For one motor combination chemical and hose wagon to American-La France Fire Engine Co., at \$5,500.

Kansas City, Kan.—For furnishing 5,000 ft. of hose, to Bi-Lateral Fire Hose Co., of Crawfordville, Ind., at \$1.10.

Monroe, Mich.—For furnishing 1,000 ft. of cotton rubber-lined hose, to Bi-Lateral Fire Hose Co., Chicago, Ill., 90 cts. Other bids as follows: Boston Woven Hose & Rubber Co., Cambridge, Mass., 75 cts., 85 cts., 90 cts. and \$1.

St. Cloud, Minn.—To American La France Fire Engine Co., for one motor combination chemical and hose wagon.

Trenton, N. J.—Hamilton Rubber Co. has submitted lowest bid on 4,000 ft. of fire hose. Its price is 85 cts. per ft.

New York, N. Y.—By Fire Commissioner, for furnishing 65,000 ft. of 2½-in. fabric hose, to Eureka Fire Hose Co., at \$1.20.

Dallas, Tex.—For 2,000 ft. of 22-in. hose to Eureka Fire Hose Co., at \$1.00 per foot.

Everett, Wash.—By County Commissioners, contract to International Construction Co., for bascule bridge across Ebey slough. Contract price is \$28,676.50 for concrete or \$25,213.15 for fir piling. Five bids were entered. Others were: Everett Construction Co., \$29,681.55; Puget Sound Building & Dredging Co., \$31,251.85; Graff & Bancroft, \$29,209.25, and Portland Bridge Co., \$28,370.25.

BRIDGES

Fort Smith, Ark.—Bill providing for free bridge across Arkansas River has passed the House and has been sent to Gov. Robinson for his signature.

Monrovia, Cal.—City Engineer is preparing plans for concrete bridge to be erected over Santa Anita Wash at cost of about \$50,000.

San Francisco, Cal.—Specifications for suspension bridge to be built over San Francisco Bay between San Francisco and Oakland have been recently presented to San Francisco Supervisors by Los Angeles engineer. His plans call for bridge 9½ miles in length, including its approaches in two cities. This bridge, to be longest and in every way most massive in the world, would be supported by ten piers, placed 2,230 ft. apart, and it would cross bay at elevation of 180 ft. above the water.

Pensacola, Fla.—Election has been called for March 25 to vote on question of bond issue for construction of bridge over Escambia River, at Molino. Estimate made by Engineer L. E. Thornton for Molino bridge was \$84,000, but Mr. Thomassello believes that it can be constructed for \$60,000.

Sioux City, Ia.—It is said that bids will be received until March 5 by the County Board of Supervisors for construction of 32 bridges.

Waterloo, Ia.—City Council is planning the improving of Falls ave. and construction of two concrete bridges over Falls ave.; estimated cost \$25,000.

Waterloo, Ia.—Construction of Melan Arch Bridge over Cedar River at Mullan ave., is being considered by City Council.

Jersey City, N. J.—Plan for financing construction of bridges and tunnels between New Jersey and New York has been advanced by Judge Minturn of New Jersey Supreme Court. It is to have counties of Hudson, Essex, Bergen,

Union and Passaic bear one-half of cost and New York other half. It has been estimated that tunnel between New Jersey and New York under Hudson would cost about \$11,000,000, while tunnel under Kill von Kull to connect with Staten Island would cost about \$4,000,000.

Millville, N. J.—Plans are being considered for erection of new draw bridge over Maurice River to replace Main st. bridge.

Perth Amboy, N. J.—County Engineer Alvin B. Fox is preparing plans for bridges to be constructed in Middlesex County. Bids for two bridges are now being received by County Board of Freeholders on March 1.

Albany, N. Y.—Assemblyman James H. Finnigan, of Brooklyn, has introduced bill authorizing construction of bridge over Nassau River, formerly known as Newtown Creek, by Commissioner of Bridges of New York City. Bridge is to cost not more than \$250,000, and entire expense is to be borne by City of New York. Bridge is to be located at foot of Maspeth ave., and is to connect boroughs of Brooklyn and Queens.

Cohoes, N. Y.—Bill providing for bridge across Mohawk River where aqueduct is now, between this city and Crescent, has been approved.

Rome, N. Y.—A. T. Moldt, superintendent of council has asked that board in its estimate provide for culvert over Wood Creek in West Dominick street to take place of present bridge, so that street at this point may be straightened. City Engineer Plunkett said estimate for this was about \$5,000.

Shelter Island Heights, N. Y.—Steps are being taken toward building of a highway bridge from Shelter Island to mainland near Greenport.

Syracuse, N. Y.—Construction of new bridge over Erie Canal in West Genesee st., in Syracuse, is being considered.

Tarboro, N. C.—Edgecombe County will shortly vote on \$100,000 bond issue to construct bridges and culverts.

Astoria, Ore.—County Court will ask for bids, to be acted on at March session of court, for construction of new bridge, 200 ft. in length, with 30-ft. draw, across John Day River, to replace present structure, which has been condemned as unsafe.

Harrisburg, Pa.—Ordinance requesting building of two bridges over Paxton st. has passed first reading.

Pottstown, Pa.—Citizens of Lower Pottsgrove are petitioning for new \$2,000 concrete bridge over Sprogel's Run, below Pottstown.

Fort Worth, Tex.—County Commissioners are discussing construction of proposed bridge over Trinity at Twelfth st. and Samuels ave.

Everett, Wash.—County Engineer has been instructed to examine Jackson, Haller, Sprague slough, Snoqualmie and Wallace River bridges and to prepare plans for improvement of about mile of Snohomish-Marysville road westerly from former place.

Tacoma, Wash.—Bids will be received at 11 a. m., Feb. 24, for issue of City of Tacoma bridge bonds in sum of \$35,000. John F. Meads, City Controller.

CONTRACT AWARDED.

Long Branch, N. J.—To Ocean Contracting Co., contract for widening county bridge at Matawan for \$2,877.

Riegelsville, Pa.—Contract for building new bridge over Durham Creek, near Riegelsville, has been awarded to Riegelsville Construction Co.

Ridgeway, Pa.—By Town Council, contract for building reinforced concrete arch bridge over Elk Creek, to Will Dickinson, of Ridgeway, at \$7,000. F. W. Ward is Boro Engineer.

Fredericton, N. B., Can.—By Chief Commissioner Morrissy, contract for superstructure of new spandrel arch bridge to replace present suspension bridge at St. John, to Dominion Bridge Company of Montreal. New bridge is to be longest spandrel arch bridge in world and cost of superstructure will be about \$275,000. Superstructure will contain about 4,500,000 pounds of metal.

Salem, S. D.—By County Commissioners, to Standard Bridge Co., of Omaha, Neb., contract for steel bridge work, and to Barnhardt Construction Co., of Salem, for concrete bridge work required in McCook County during 1913. In both cases contract is based on plans for all lengths and types of bridges that Commissioners may order during the year. Engineers are Dakota Eng. Co., of Mitchell, S. D.

MISCELLANEOUS

Berkeley, Cal.—Plans for great deep water harbor have been laid before City Council by Allen C. Rush, Los Angeles engineer, and have been accepted.

Long Beach, Cal.—Establishment of public market is being discussed.

Los Angeles, Cal.—Plans are under way by Board of Public Works to construct another portion of municipal railroad, this time at San Pedro end on municipal dock No. 1.

Los Angeles, Cal.—Board of Supervisors has approved of proposition to rewire old court house building, total cost \$8,506.

Oakland, Cal.—Construction of block of municipal railroad on extension of Washington street, from Fourteenth street to Fifteenth street and San Pablo avenue, to be leased to San Francisco-Oakland Terminal Railways for diversion of San Pablo avenue traffic down Washington street instead of down Broadway, which is congested with car lines at present time, has been offered by Mayor F. K. Mott as solution of present traffic difficulty.

Sacramento, Cal.—Plans for establishment of free market in Sacramento are progressing.

Hartford, Conn.—Purchase of 2-ton truck for water department is being considered.

Waterbury, Conn.—Large number of streets will be oiled during 1913.

Wilmington, Del.—Wilmington Council has decided to issue bonds to buy land in Tenth Ward for public playground.

Chicago, Ill.—Members of the Woman's City Club are planning to ask Chicago for municipal market to cost between \$7,000,000 and \$10,000,000.

Indianapolis, Ind.—D. A. Bohlen & Son have been appointed architects by Board of Public Works for municipal garage to be erected at Alabama and New York sts.

Boston, Mass.—Council has passed loan order of \$125,000 for erection of municipal building on site of Vine St. Church.

Boston, Mass.—City Treasurer will receive bids on March 1 for bonds of \$1,000,000 worth for Boylston st. subway, \$350,000 for Dorchester tunnel, and \$650,000 for extension to East Boston tunnel.

Haverhill, Mass.—Purchase of automobile for street department has been authorized.

Medford, Mass.—It has been voted to give Mayor authority to borrow \$200,000 for land and a new city hall.

Grand Rapids, Mich.—With consideration that city receive 50 cts. instead of 60 cts. each ton of garbage, contract with Grand Rapids Garbage Holding Co. was unanimously sanctioned by Common Council and Mayor instructed to execute it at once. Contract will be effective March 1.

Concord, N. H.—Superintendent of Highways Alfred E. Clarke recommends purchase of auto truck for transportation of garbage.

Roselle Park, N. J.—Plans for adequate garbage disposal system are being considered.

Springfield, N. J.—The Springfield Township Committee has decided to call special election Feb. 25, at which proposition to bond township for \$20,000 wherewith to erect town hall will be submitted.

Trenton, N. J.—City Commissioners will order appropriation for purchase of pulmotor.

Trenton, N. J.—The assembly has passed the House bill authorizing Newark to issue bonds to extent of \$2,000,000 to build subway and to make 50-year lease with railway company for operating underground railroad.

Amityville, L. I., N. Y.—Plan of appropriation of \$25,000 for purpose of dredging in waters of town of Babylon is being considered by Town Board.

Brooklyn, N. Y.—Building of new municipal asphalt plant is advocated by Major John William Trumbidge, of the Highway Department.

Buffalo, N. Y.—Playground Commission has voted to send communication to Common Council requesting another bond issue in sum of \$100,000 for purchase of more land for playgrounds and improvement of those now owned by city.

Buffalo, N. Y.—Erection of new city hall is being considered.

Greenpoint, L. I., N. Y.—Purchase of steam road roller has been authorized.

Lockport, N. Y.—Lockport is to have garbage disposal plant. City Engineer Frehsee has been directed by Aldermanic Committee on Streets to inspect plant of

Buffalo Fertilizer Co. and have plans drawn for duplicate here. It is estimated that plant will cost between \$8,000 and \$10,000.

Mattituck, L. I., N. Y.—Arrangements are being made by United States Engineers Department and J. M. Lupton, of this place, to continue improvements to Mattituck Creek. It is understood that contract will be let in spring for rebuilding of breakwater at mouth of creek in Long Island Sound and for dredging of channel 40 rods wide and 2 ft. deep at low water from mill bridge to village. This work will cost about \$40,000.

Newburgh, N. Y.—Construction of public pier is being considered. D. J. Coutant, City Clerk.

Rochester, N. Y.—Clerk Pifer will receive bids for runabout for Department of Engineering.

Schenectady, N. Y.—Plans for garbage disposal plant are under way.

Schenectady, N. Y.—Plans have been completed for a public market.

Schenectady, N. Y.—Plans are being prepared for garbage disposal plant.

Lima, O.—County Commissioners are considering issuing \$250,000 bonds for remodeling of court house.

Springfield, O.—Service Director C. E. Schaefer has been instructed to purchase new Kelly road roller for \$2,750, and to sell old one at public auction.

Toledo, O.—City will sell in March bonds amounting to \$1,075,000 for city hall building, park department and motor apparatus for fire department.

Erie, Pa.—Garbage plant bond issue bill has passed State Assembly.

Lansdowne, Pa.—Erection of new jail is being planned.

Lebanon, Pa.—Bond issue of \$300,000 for various improvements is under consideration.

San Diego, Tex.—Commissioners' Court has ordered bond election for \$100,000 to build courthouse in San Diego.

Petersburg, Va.—Sum of \$300,000 has been voted for public improvements.

Seattle, Wash.—Ordinance has been passed providing for construction of extension to public market at Pike place. Bonds for which in sum of \$150,000 will be voted on March 4.

Spokane, Wash.—Plans for establishment of municipal telephone systems at Spokane, Seattle and Tacoma and their connection with Home Telephone Co.'s system at Portland owned by Samuel Hill, are being discussed.

Tacoma, Wash.—Mayor W. W. Seymour has announced that city council had decided to build municipal car line across 11th street bridge and across tidelands as far as Sittum avenue. Bonds to furnish funds to build line will be issued if voters favor issue at election, which mayor said would be held this spring.

Fond du Lac, Wis.—Extensive use of oil for street sprinkling purposes on macadam thoroughfares will be recommended to Common Council by Committee on Light and Water.

Janesville, Wis.—Highway Commissioner Post and two members of permanent Highway Committee of Sauk County have been visiting factories in different cities with intention of buying kerosene tractors for use in construction of good roads.

Lodi, Wis.—Lodi will hold election on April 8 on question of issuing bonds in sum of \$12,000, process of the sale to be used exclusively for building city hall containing fire department, jail, council room, public library and public hall.

Monroe, Wis.—Monroe will soon contract for 5 tanks of asphaltum oil to be used for laying dust on its streets this coming season. Option for 5 tanks more will be taken. City will purchase 2 storage tanks that will be placed at water works station, where they can be filled from tank cars. Tanks will hold 8,000 to 10,000 gals. each, and one will be used to hold light and other heavy oil.

Calgary, Alta.—Sum of \$165,000 will be spent in construction of police station.

Calgary, Alta., Can.—Bids are being received by J. M. Miller, City Clerk, for two motor street sprinklers of from 800 to 1,400 gallons capacity.

CONTRACTS AWARDED.

Los Angeles, Cal.—By board of supervisors for erection of new psychopathic ward building to F. O. Engstrom Company, at \$42,286. Same firm was also awarded contract for new library building at \$21,495.

San Francisco, Cal.—To J. W. Anderson & Co., 1623 Eddy st., contract to erect machinery building at the Panama-Pacific International Exposition, at \$451,900.

Hartford, Conn.—By Board of Contract and Supply, contracts for completing extension to municipal building as follows: Furnishing and setting Bethel granite for the exterior of building, to New England Granite Co., of Westerly, R. I., at \$197,000, and for construction and completion of the building without exterior granite work, to P. J. Carlin Construction Co., of New York, N. Y., at \$623,667.

Hartford, Conn.—Contract for furnishing and setting of Bethel granite to be used in erection of new city hall extension has been awarded the New England Granite Works, of Westerly, R. I., for \$197,000, and contract for rest of extension, aside from granite work, has been awarded to P. J. Carlin Construction Co., of New York City, for \$623,667.

Rockwell City, Ia.—Contract for building new court house has been awarded to the Falls City Construction Co., of Louisville, Ky., for \$108,600, the lowest bidder.

New Bedford, Mass.—By City Council Committee on Street Lights, for 50 iron lampposts, contract to Mt. Pleasant Iron Foundry Co., at 2½ cts. a pound. Only other bidder was Fairhaven Iron Foundry Co., at 3 cts. per pound.

Greeley, Neb.—For constructing 4-story court house from plans of Berlinghoff & Davis, architects, Security Mutual Building, Lincoln, to Henry Ohlsen & Son, of Loup City, Neb., at \$49,482.

Albany, N. Y.—D. L. Taylor & Co., of Utica, have submitted lowest bid to State Superintendent of Public Works Duncan W. Peck, for work of constructing barge canal terminal on Lake Champlain at Plattsburgh, amount of proposal being \$126,834, as compared with engineer's estimate of cost of work of \$136,143. Four other bids were submitted. Superintendent Peck also received six bids for Barge Canal contract No. 107, which provides for lift bridge and fixed bridge over Barge Canal in city of Little Falls. Lowest was that of Skene & Richmond, of Brockport, in amount \$127,707, as against engineer's estimate of cost of \$124,471. No awards have been made.

Albany, N. Y.—By Superintendent Peck of State Department of Public Works, barge canal contracts aggregating over \$2,664,000. Awards follow: Erecting power stations and installing electric machinery for operating and lighting locks along the Erie and Champlain Canals, to McArthur Bros. Co. and Lord Electric Co., of New York, for \$1,612,356; construction work at Utica, to Grant, Smith & Co., and Locker, of New York, for \$1,014,671; constructing bridge at Rocky Rift feeder, Montgomery County, to Lupfer & Remick, Buffalo, for \$25,993.

Ilion, N. Y.—By Board of Village Trustees, contract for 860 ft. retaining wall on bank of Erie Canal, for purpose of widening West Main st., to Alfred Musso, of Frankfort, contract price being \$11,320. Other bidders were the Warren Brothers and Charles R. Lewis.

Pittsburgh, N. Y.—Bids have been opened by County Commissioners for improvements on court house made necessary by "hump" removal. Ten bidders entered into competition, and prices ranged from \$211,000 to \$157,561, difference in bids being caused by various kinds of granite proposed by contractors. Lowest general bid was that of William Miller & Sons, which was \$171,172, being based on general specifications furnished by County Engineer.

Alamogordo, N. M.—To Lyon & Axtell, of Pueblo, Col., contract at \$24,050 for construction of dormitory building and power plant at State Institute for Blind.

Newport, Ore.—By Lincoln County Court, contract for construction work of new concrete county jail, to L. H. Paine, of Newport, for \$3,480. Jail will be fitted with two steel cells. Estimated cost of jail when finished will be \$6,500.

Erie, Pa.—For grading Liberty st. subway, to J. & M. Doyle.

Beaumont, Tex.—By City Council, to Thorne & Weber, of Beaumont, contract for erecting brick and concrete abattoir at \$11,550.

Denison, Tex.—For erection of proposed city hospital, to Tibbetts & Hogue, local contractors, for sum of \$16,720.

TOO LATE FOR CLASSIFICATION

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
STREETS AND ROADS				
Kan.	Topeka	.....2.20 p.m., Feb. 28..	Asphaltic concrete	C. B. Burge, C. Clk.
N. J.	Union	.....8 p.m., Mar. 3..	Stone for highways.....	Geo. Compton, Clk.
N. Y.	New York	.....3 p.m., Mar. 6..	Macadam asphalt binder, 174,000 gals.....	C. B. Stover, Pres.
Ore.	Tillamook City	.....1 p.m., Mar. 6..	Hard surface highways.....	J. C. Holden, City Clk.
Wash.	Seattle	.....10 a.m., Mar. 7..	Brick or other paving.....	C. B. Bagley, Secy.
N. J.	Jersey City	.....2 p.m., Mar. 10..	Road oil, 50,000 gals. Improving street; repaving viaduct.....	E. B. See, Clk.
D. C.	Washington	.....2 p.m., Mar. 14..	Resurfacing with macadam.....	W. M. Hays, Act. Secy.
Va.	Richmond	.....Mar. 14..	Smooth paving, cost \$80,000.....	C. E. Bolling, C. Engr.
SEWERAGE				
Ill.	Edwardsville	.....3 p.m., Mar. 17..	Furn. 8,000 ft. 8 to 15-in. sewers.....	N. O. Nelson Mfg. Co.
WATER SUPPLY				
Mass.	Boston	.....2.30 p.m., Mar. 3..	C.-I. pipe, 450 tons.....	H. H. Sprague, Chrmn. W. & S.
FIRE EQUIPMENT				
Va.	Portsmouth	.....Noon, Mar. 6..	Fire hose, 2000 feet.....	C. N. Markham, Chrmn.
N. Y.	Brooklyn	.....10.30 a.m., Mar. 10..	Fire house	Josh. Johnson, Comr.
N. J.	Jersey City	.....2 p.m., Mar. 10..	Fire hydrants	E. B. See, Clk.
MISCELLANEOUS				
N. Y.	New York	.....3 p.m., Mar. 6..	Two auto touring cars.....	C. B. Stover, Pres.